Air Quality Management Subcommittee Meeting
April 4, 2006
Arlington, Virginia

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Air Quality Management Subcommittee Meeting

April 4, 2006
Sheraton Crystal City
1800 Jefferson Davis Highway, Arlington, Virginia

Metro from National Airport – Take the metro one stop to the Crystal City station. Use the Yellow line (Mt. Vernon Square) or the Blue line (Largo Town Center). The Sheraton is one block from the Metro Station. From the station walk a short distance south on S Clark Street and bear right on 18th Street.

Meeting Agenda

8:30	**Opening and Problem Identification**	**Greg Green**
	(Scenario discussion by John Seitz)	
10:00	**Issue Group 3**	**Michael Bradley and Greg Dana**
11:00	**Issue Group 1**	**Janet McCabe**
11:45	**Lunch**	
12:45	**Issue Group 2**	**Brock Nicholson**
1:45	**Team 2**	**Anna Garcia, Bob Wyman, and Deb Wood**
3:00	**Break**	
3:15	**Discussion: Next Steps and Meetings**	
4:00	**Adjourn**	

Scenario Document

OVERARCHING FRAMEWORK SCENARIOS FOR IMPROVING THE AIR QUALITY MANAGEMENT SYSTEM IN THE UNITED STATES

February 23, 2006

NOTE: *The following discussion includes 3 overarching framework scenarios and is not intended to cover all of the relevant points of each option element or all of the different approaches within each scenario. The discussion is intended to be a starting point. The first scenario is based on the use of the current air quality system under the current CAA, the second and third scenarios represent increasingly aggressive changes to the current system. The second scenario is a transitional scenario with some components of the current system. The third scenario would require statutory changes. The details in each scenario are present to serve as examples and do not yet include the work of the Teams and Issue Groups nor represent decisions or conclusion of discussions by the AQM Subcommittee.*

Scenario I. Improvements to the Current AQM Program under the current CAA authority

A. Program Framework

This scenario represents the use of the current CAA system with enhancements that would generally make the program more efficient, easier to understand, and acceptable. The recommendations from the Air Quality Management Workgroup Phase I report as well a number of the recommendations being considered in the Air Quality Management Subcommittee Phase II discussions could be used to enhance the current program.

B. Key Program Features/Enhancements

- Attainment Program- Existing PSD program and national rules would serve to manage growth in these areas.
- Non Attainment- Traditional SIP Attainment Planning and Regulatory Development programs would apply consistent with the current guidance. Make additional improvements to the SIP process.
- Air Toxics Program- Traditional programs under Title III of CAA would continue to apply including the residual risk program as well as the urban air toxics program.
- Ecosystem Program- current program based on Class I area protection programs as well as regional haze planning programs
- Multi-pollutant- Current integration of elements discussed concerning planning for ozone and PM standard implementation as well as toxics integration.

Linkage to Work by AQM Working Group and Subcommittee: (some examples)

Phase I Report- a large number of the recommendations in this report will be helpful to the existing process. They include recommendations dealing with SIP processing and the use of models vs. monitoring data.

Phase II Discussions

Team 1

Issue 1- Problem Identification - under the current program the problem identification is assumed to be covered by the goal setting process within the CAA. The application of these recommendations may be limited.

Issue 2- Air Quality Planning Process - most of the recommendations being discussed would be added to the current program and probably unfeasible.

Issue 3- Coordination Strategies - the recommendations could be applied by the states as they develop control strategies to support their attainment demonstrations.

Issue 4- Communications- the recommendations could be used by state and local agencies to implement their strategies.

Team 2*- Tools discussed by this group could be applied by the state and local programs to develop innovative control strategies.*

C. Roles and Responsibilities

- National - Continue to fulfill responsibilities as defined by the CAA. In addition, policy/guidance documents or regulations would be changed to make them consistent with the recommendations discussed above.
- Regional - Continue to fulfill their role of providing technical assistance to the State programs and assisting in the coordination of state control programs across jurisdictions in support of the various CAA regulatory programs.
- Local - State and local program responsibilities remain the same. They would have responsibility for implementation of all of the various CAA programs.

D. Accountability

Current accountability mechanisms in the CAA would continue. Attainment dates, Federal Implementation Plans and sanctions would apply based on the requirements of the CAA.

References to States or states implies the inclusion of Tribes

Scenario II. Transition from the Current SIP System to Air Quality Management Program (AQMP) within the basic CAA Framework

A. Program Framework:

NOTE: The elements of a transition program presented below are examples. It includes concepts currently being discussed in Team 1/Issue Group 2.

The main element of the transition program would be the development of statewide Air Quality Management Plans (AQMP) to replace the traditional SIP. *(Note: The CAA specifically mandates SIPs for each NAAQS. Would the AQMP be developed in parallel with the SIP and could eventually take over in the future or would the AQMP be an umbrella planning document to which the individual SIPs would conform?)* Individual State plans would build toward a multi-state plan to address the relevant issues within the air shed. The transition program would combine regulatory, voluntary, incentive-based elements to foster a continuous improvement emission reduction program that covers an industrial sector.

- **Air Quality Management Plan-** Each State would develop an overall air quality management plan that would address attainment, non-attainment, air toxics, ecosystem protection, local, and environmental justice issues within the State.
    - Takes the place of the SIP and would go through appropriate public comment.
    - Developed with the participation of all relevant stakeholders (EPA Regions and HQ, States, industrial sector, small business representatives, environmental groups, local officials etc.).
    - Updated on a regular schedule (8 to 10 years).
    - Look across pollutants and explore areas of the emission inventory that present problems to one or more sensitive areas within the State. Areas would be identified as either in nonattainment or close to attainment for criteria pollutants, for high exposures to air toxics, and areas with sensitive ecosystems (parks, streams etc).
    - Identify those sectors of the inventory where reductions would have the greatest benefit in addressing the various issues.
    - Identify those sectors of the inventory that depended on actions from the federal level (mobile sources, planes, trains, etc.) to address the issue.
    - Provide a framework for adjustment and environmental indicators to track progress in those areas that were non attainment or sensitive for ecosystem or toxics concerns.

References to States or states implies the inclusion of Tribes

- Consistent with the environmental goals and dates of the CAA. However, to the extent a statewide plan sets forth a different schedule, the alternative would be developed with all the relevant stakeholders and go through public comment.
- The end goal is to have a plan that is multi-pollutant based and addresses all of the critical air pollution issues within the state, sets priorities and provides an overall control plan that would provide critical data to all pertinent sectors.

- **Continuous Improvement Program**- This program would establish a program that would require industrial sources to report their total annual emissions in terms of total emissions and emissions per unit of production.

- Sources that are within e.g. + or - 15% of the mean of the sector would be considered to be a "normal operational range".
- Sources that are outside of the range in a higher emission rate per unit would be expected to achieve the mean with a specified period of time (5 years).
- Sources that have an emission rate better than the mean range, could possibly generate credits or receive other forms of regulatory relief.
- This concept could also be structured in terms of a technology requirement or voluntary program with the existing program requirements as back stops to the program.
- Regular reviews to determine if the mean of a sector should be maintained at the current level or the feasibility of achieving significant additional improvements in near future.

B. Key Program Elements/Enhancements
(Summary only- more elements would have to be included)

- **Attainment Program** - the major elements of the program required to maintain attainment would be set forth in the Air Quality Management Plan and incorporated into the source operating permits (see permit discussion below).
- **NonAttainment** - The reductions identified in the plan would be incorporated into source operating permits. The state rules would not have to go through the Federal SIP process. The overall control plan would be reviewed in context of the AQMP and include a public comment process. The state permit program (area and minor sources) and the Title V program (major sources) would implement the plan. The state would call for the permit changes and the sources would complete the draft permits electronically. Sources would determine the means to achieve the reduction using an appropriate technology or financial instruments. The

References to States or states implies the inclusion of Tribes

permit could be completed by the source with a "Turbo Tax" like program with all of the appropriate citations and limits. The state would then review, edit and approve. As discussed above, the overall Air Quality plan would set % reduction targets and a process for adjustments as required.

- **Air Toxics Program** - Implementation of the toxics standards would based on the federal rules. States could also require additional reduction targets for geographic areas (hot spots) from stationary sources. To the extent these areas overlap with any of the nonattainment programs, the program should consider reductions from all plan reductions
- **Ecosystem Protection** - The plan would require reduction targets that would avoid impact on a sensitive ecosystem and would consider the reductions needed in the overall airshed programs, such as visibility.
- **Multi-Pollutant** - As described above, the air quality plan would be developed in a multi-pollutant fashion.

Linkage to Work by AQM Working Group and Subcommittee

Team I

Issue 1- Problem Definition - the recommendations in from this group would be helpful to the process of developing the AQMP at a state and airshed level.

Issue 2- Air Quality Planning Process - The framework discussed above is based on initial discussions of this group. They will refine the recommendations.

Issue 3- Coordination Strategies- the recommendations discussed is this issue paper would be important to the development of an AQMP.

Issue 4- Communication Strategies- the recommendations of the group will be used during the development and implementation of the plan and controls.

Team 2 - *The work products of this group would be useful at all program levels for identifying feasible reduction strategies and control options.*

C. Roles and Responsibilities

- National - the national program would continue to be responsible for:
  - developing national rules to address the sectors best regulated at the federal level (on- and off-road sources, national source categories of concern etc.).
  - fully participating in the plan development process
  - monitor implementation.

References to States or states implies the inclusion of Tribes

- Regional- the regional groups would be responsible for providing
    - technical support .
    - coordinate the development of the plans across the jurisdictions.
    - facilitate a comprehensive plan for the air shed.
    - work with the federal partners to track the development and implementation of federal responsibilities.

- Local - the state and local programs would have to implement programs consistent with the AQMP.

D. Accountability

The AQMP would establish goals for attainment dates (consistent with the CAA) and interim environmental indicators to track both the effectiveness of the plan and progress toward achieving the goals. Failure to attain the goals could be backstopped by a more rigid set of control programs, or some of the current programs within the CAA. Environmental indicators in the plan will be monitored and adjustment to strategies will be made based on the data.

Scenario III. New Air Quality Management Framework

There are many different options for the development of a new Air Quality Management System. Several options include: a) a critical loads approach similar to the European process; b) application of technology to all sources, similar to the process discussed during the Phase I effort; and c) a combination approach that would apply a continuous improvement process for all sources and specific control strategies for emission sources in sensitive areas. ***NOTE: The details in this scenario serve as examples. Concept 1 is a summary of a proposal by a member of Team 1 Issue Group 2)***

A. Possible Program Framework - These proposals are only straw proposals and as indicated above, there are many other options that could be considered. However, as proposals are considered, they should be reviewed in context of the NAS Report on Air Quality Management in the US.

Concept 1:

All sources of air pollution, regardless of size or location will be obligated to take reasonable steps to reduce their emissions. EPA will promulgate rules to govern how reasonable performance levels (RPLs) are established and how frequently RPLs must be reviewed and updated. In concept, RPLs would constitute a minimum set of performance standards nationwide, providing a foundation for additional controls that may be needed to address existing or potential area-specific problems.

Attributes:

- Eliminates "grandfathering"
- Addresses all sources, not just major sources
- Addresses all pollutants, including toxics, on a multi-pollutant basis
- Continuous improvement in air quality everywhere
- Eliminates the need for emission trading that would otherwise be needed to shift control costs
- Provides a robust foundation for emission trading
- Probably other attributes could be established

Accountability

Programs similar to those in the existing program and ones discussed below could be used.

Concept 2:

References to States or states implies the inclusion of Tribes

Air Quality Standards would be established in an integrated fashion by evaluating all pollutants and their current levels in the environment. The review process would be conducted on a 10 year basis and initial recommendations to EPA would be developed by an expert panel, or panels, with members from the regulatory, science, industrial and environmental sectors. The process would consider not only the health data associated with the pollutant, but would evaluate the sources of the pollution, the options for reducing the pollutants, the cost effectiveness of the controls. It would establish other environmental targets (similar to current process, another option would be to evaluate the use of critical loads). At the conclusion of the process, the panel would recommend to EPA the range of targets that should be established. The panel would look at all pollutants and their various health/environmental impacts in making the risk management recommendations. The process would conclude with recommendations on the environmental indicators that should be tracked, with associated monitoring recommendations.

Implementation:

In developing the implementation program, EPA would develop control plans for the various areas, in an open-stakeholder process including public comment. The plan would define the roles and the responsibilities for the various levels of government (local, regional and national) in terms of reduction programs. Each level of government would establish and publish a regulatory development schedule for the sectors or programs of responsibility (EPA - national rule, trading programs etc. State - area source and small source rules etc.).

Accountability:

Monitoring programs such as those discussed in the NAS report would be established and used to track progress. In addition, the program rules and elements would have to be enforceable in a manner that would require adjustments to the plan based on the environmental indicators or to force compliance with the published elements of the plan.

Additional Points to Consider

Under the first and second scenarios there are some options that are potentially more in line with the intent of the current Act and also may already be approvable.

States today can develop and adopt alternatives to programs like increments for all pollutants but SO2 once the PM-10 standard is revoked. As long as these programs can be shown to be "at least as stringent" as the increment approach in Class I and II areas it can be an approvable alternative. It is more a mechanism to manage deterioration than to achieve continuous improvement. The term "achieve continuous improvement" needs to be carefully used. In parts of the country (parts of the west and midwest) there are relatively few if any sources. To assume those clean areas should be trying to get cleaner creates an unachievable goal.

Increasing population into already heavily populated areas like the coasts, the Great Lakes (where ports are), and the warm weather states as we age and retire are also factors to be considered.

We should consider urban areas sprawling more and more into rural areas (like Atlanta or Charlotte). The plans proposed do not really focus on the future of sprawl. One way to do so is a PSD/NSR program that just requires BACT everywhere with no offsets. This takes away any incentive to locate sources at the edges of nonattainment areas. NSR may not be chasing a lot of sources out of nonattainment areas but it will as the offsets get more expensive. Whole industries are leaving southern California for Arizona. Again why not manage the new sources in a different structure than thru offsets?

Ten years seems the appropriate cycle for mandatory updating. There needs to be time for measures to be kicked in, evaluated and new studies done, and a regulatory process.

It is very important to evolve the State/Federal relationship in terms of interactions and oversight. One approach would be to move toward a tracking of air quality, effects and emissions with automatic action points. If you don't trigger the points, no action is taken against a State. If a State does trigger the points, it must take certain actions or a FIP will be required. The proposal has problems (lack of good indicator monitoring in all areas), but some significant benefits exist (a focus on goals not on process fouls and problems).

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Table of Team 1 Recommendations

Problem Identification

Recommendation: Improve accuracy and availability of environmental and health data to enable more complete characterization of air quality, emissions, and environmental and health outcomes and to facilitate the assessment and characterization of relative risks.

- Improve air quality data
    - **a.** EPA should revise monitoring requirements as appropriate to allow states to shift resources in line with results of review. **(Scenario 1)**
    - **b.** EPA should provide better outreach and establish a category of monitoring devices (or practices) that can be used for research, informational, policy-setting, and public information purposes but will not be used to set nonattainment boundaries or bring other regulatory programs into play and work with states, locals, tribes and other stakeholders **(Scenario 2 or 3)**
    - **c.** EPA, in partnership with other Federal agencies, should develop a more integrated observation strategy that addresses gaps in rural and elevated observations critical to supporting ecosystem, regional and intercontinental transport assessments. **(Scenario 1)**
- Fill gaps in emissions inventories and air quality modeling.
    - **a.** Target resources towards the improvement, demonstration and development of CEMS technology. **(Scenario 1)**
    - **b.** Develop adequate emissions infrastructure so emissions estimates can be shared across stakeholders. **(Scenario 1)**
    - **c.** Emphasize the use of air quality models in retrospective and current time applications as well as prospective applications. **(Scenario 1)**
    - **d.** Develop the needed interfaces between air quality and watershed models to better link air program rules with deposition related impacts on ecosystems. **(Scenario 1)**
    - **e.** Use current air quality models to quantify co-benefits across multiple pollutant categories. **(Scenario 1)**
    - f. Integrate models and ambient data to provide more robust, spatially, temporally and compositionally enhanced air quality surfaces for accountability, regulatory, ecosystem and health assessments. **(Scenario 1)**

Scenario

1. **Within Current AQM**
2. **Transition to AQMP**
3. **New AQM Framework**

Consensus/Concern

Problem Identification

Recommendation (continued): Improve accuracy and availability of environmental and health data to enable more complete characterization of air quality, emissions, and environmental and health outcomes and to facilitate the assessment and characterization of relative risks.

- Improve coordination and communication between EPA and external partners, including health agencies, academic institutions, and the medical community.
    a. States, EPA and CDC should periodically hold a joint environmental health summit on a regular schedule (perhaps every five years) to evaluate current priorities, identify new issues, etc; involve stakeholders in development of topics. **(Scenario 1)**
    b. State environmental agencies should take steps to increase coordination with state health agencies. **(Scenario 1)**
- Improve the collection of control and cost data to facilitate analysis of both projected and actual implementation costs for major regulations.

Scenario

1. **Within Current AQM**
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

Problem Identification

Recommendation: Improve the priority setting process by creating mechanisms to systematically realign resources and regulatory focus toward areas of greatest health and environmental risk.

- States, in close cooperation with their regional offices, should develop comprehensive, multipollutant air quality plan and review/update every five years. **(Scenario 1 or 2)**
- EPA should use the updated information provided by the S/L/Ts as a result of their 5 year review/update for developing national regulatory priorities. **(Scenario 1)**
- EPA and CDC working with S/L/T should produce an Air Quality Health Trends report **(Scenario 1)**
- Improve the link from improved science to improved policy: develop new mechanisms to encourage more rapid adjustment of policy priorities in the face of new scientific information. **(Scenario 1)**
- Focus on multipollutant approaches and initiatives, both in data collection and in priority setting. **(Scenario 1)**

Scenario

1. **Within Current AQM**
2. **Transition to AQMP**
3. New AQM Framework

Consensus/Concern

Problem Identification

Recommendation Improve accountability by systematically monitoring progress and evaluating results, working to ensure that data collection is meaningful and that feedback loops exist to ensure that actual environmental results inform the future allocation of resources and the establishment of priorities.

- Adjust the NAAQS Review Process to be more timely and efficient. **(Scenario 2)**
- EPA, in close consultation with States, should develop an air accountability framework providing an overarching structure for priority setting. **(Scenario 1)**
- EPA should work with CDC and other agencies and stakeholders to improve indicators that can be used to assess the impact of changes in air quality on public health and the health of ecosystems. **(Scenario 1)**
- EPA and the S/L/T should evaluate the progress that is being made under various regulatory control programs, by assessing compliance rates, actual reductions achieved, and in practice cost-benefit analysis. **(Scenario 1)**

Scenario

1. **Within Current AQM**
2. **Transition to AQMP**
3. New AQM Framework

Consensus/Concern

Air Quality Planning Process

Recommendation: All new and existing sources (stationary, area, and mobile) should be required to meet reasonable performance levels.

- What is reasonable?
- How to mesh the RPL concept with existing control requirements.
- Compliance timetables.
- Any exception processes.
- Roles of upwind states in reasonableness determinations, if any.
- How often existing sources would have to revisit the adequacy of their emission controls as technologies improve.
- To what extent can RPLs be used to promote continuous improvement?
- Consequences of noncompliance.
- Legal authorities.
- Other federal promulgation issues.
- Resource issues for implementation at the local, tribal, and state level.

Scenario

1. Within Current AQM
2. Transition to AQMP
3. **New AQM Framework**

Consensus/Concern

Air Quality Planning Process

Recommendation: Reasonable performance levels should be required for all pollutants that directly or indirectly contribute to ambient air quality problems. This would include primary and secondary emissions of pollutants for which a national ambient air quality standard applies, primary and secondary emissions of pollutants that are precursors to compounds for which national standards exist, and emissions of other air pollutants that may cause damage to humans, animals, and/or plants or which may contaminate soils and waterways.

Scenario

1. Within Current AQM
2. Transition to AQMP
3. **New AQM Framework**

Consensus/Concern

Air Quality Planning Process

Recommendation: Provide mechanism to encourage/require continuous improvements in emissions reductions and air quality.

Options Presented:

A. Status Quo – Technology-based emissions standards
B. Cap and trade programs
C. Cap and trade programs with continuously declining caps
D. Emission standard glide-slopes
E. Ambient air quality standard glide-slopes
F. Voluntary improvement programs
G. Emission fee systems
H. Industry average performance system (IAPS)
I. State/tribe regulatory improvement systems

Scenario

1. Within Current AQM
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

Air Quality Planning Process

Recommendation: Expand the use of seasonal and episodic control measures to achieve air quality standards in areas where all reasonable continuous controls have already been required.

Scenario

1. Within Current AQM
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

Air Quality Planning Process

Recommendation: Multi-faceted Air Quality Management Based on a Balance of Technology Standards, Monitoring, and Modeling. This alternative would manage air quality through a combined reliance on basic emission control expectations, more specific emission control requirements derived from an analysis of monitoring, and modeling data to resolve local and regional air quality issues.

Scenario

1. **Within Current AQM**
2. **Transition to AQMP**
3. **New AQM Framework**

Consensus/Concern

Air Quality Planning Process

Recommendation: Use an integrated, multipollutant ("one atmosphere") planning approach to reduce emissions of air pollutants more effectively and efficiently, in order to protect human health and ecosystems.

- Current AQM program – single pollutant SIPs and sector-based NESHAPs, with general support for multipollutant control strategy development, including consideration of co-benefits and disbenefits. **(Scenario 1)**
    a. Continue current efforts to support multipollutant control strategy development (e.g., development of guidance, development of tools and data (per Team 2 recommendations))
    b. Continue Detroit Pilot Study as multipollutant control strategy development
    c. Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts
    d. Determine approaches for attaining targeted emission reductions expeditiously and with greatest overall benefits
- Air Quality Management Plan (AQMP) within the CAA framework – umbrella planning document that includes individual/integrated SIPs for criteria pollutants and possibly selected HAPs, as well as plans for addressing air toxics, ecosystem protection, and local environmental issues within a State. **(Scenario 2)**
    a. Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts
    b. Determine approaches for attaining targeted emission reductions expeditiously and with greatest overall benefits
    c. Transition to a multipollutant air quality planning approach, which would require:
        i. reconciling timing for SIP due dates and NAAQS attainment dates (e.g., by granting an extension for submittal of an integrated SIP)
        ii. providing economic incentives (e.g., additional grants for diesel PM reductions, with a streamlined process)
        iii. providing other incentives (e.g., more time as a trade-off to better control strategy/technology selection)
        iv. developing tools and data to support integrated, multipollutant SIPs
        v. investing resources in additional test cases for selected nonattainment areas
        vi. assessing options for "permit streamlining" (see Team 2 paper)
- AQMP as a comprehensive air quality management plan that addresses air pollutants in an integrated manner (would require CAA revisions), including attainment of NAAQS, sector-based reductions of HAPs and criteria pollutants, ecosystem protection, and local environmental issues within a State**. (Scenario 3)**
    a. Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts
    b. Determine approaches for attaining targeted emission reductions expeditiously

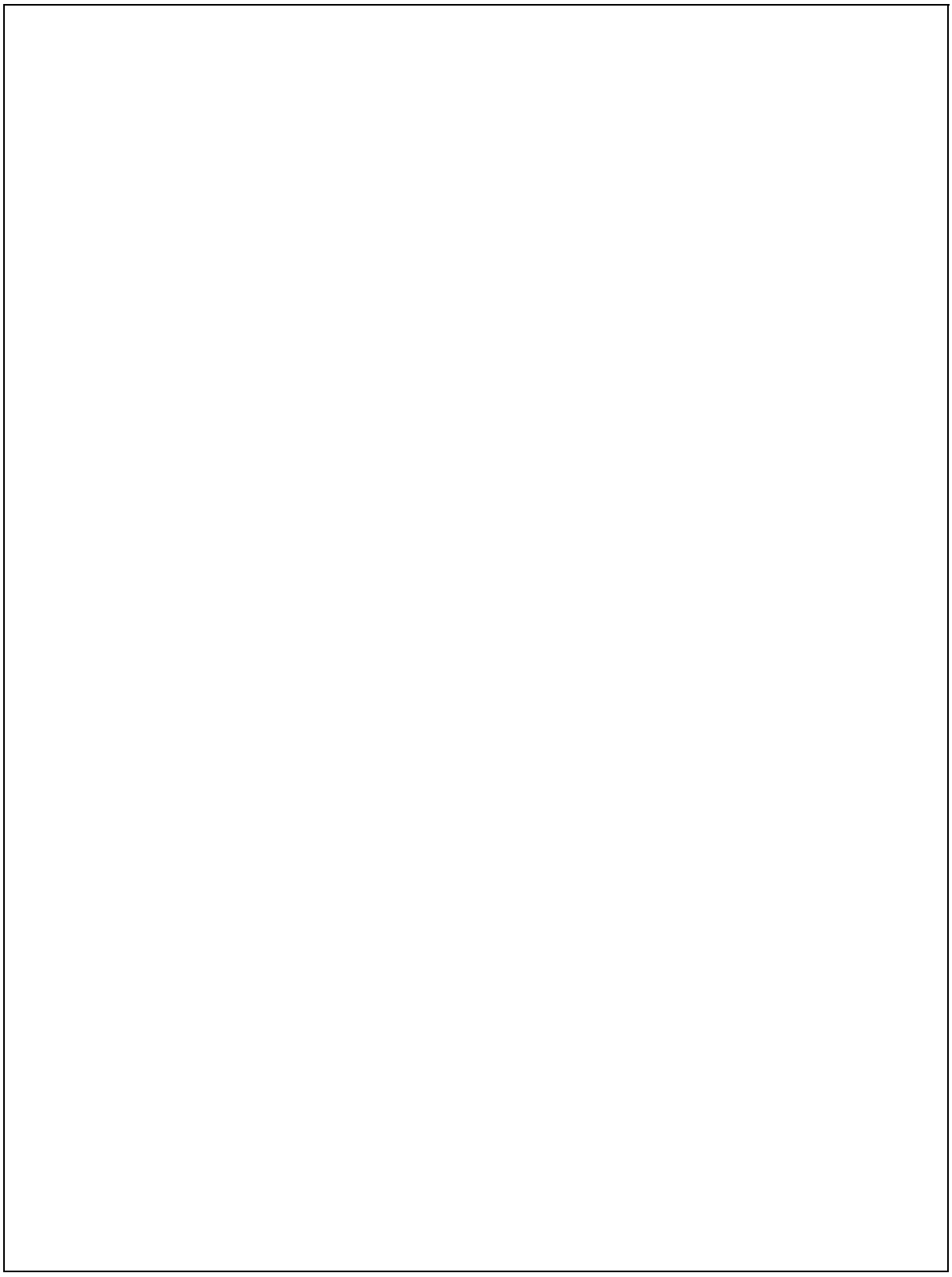
and with greatest overall benefits

c. Develop a framework for an AQMP and identify specific legislative changes to the CAA needed to support this approach, including:
    i. Separating SIP due dates from NAAQS promulgation
    ii. Replacing SIPs with an AQMP that addresses all of the critical air pollution issues within a State (including, for example, those that impact human health, ecosystems, climate change), sets priorities, and provides an overall plan
    iii. Considering setting a fixed period for air quality planning, with a mid-period adjustment, if needed (e.g., if not showing "reasonable progress")
    iv. Structuring implementation of NAAQS to occur in parallel for multiple pollutants
    v. Using the AQMP as a basis for creating multi-state air quality plans
d. Assess the standard period for NAAQS review and options for review cycles that correlate with new/improved science and with the significance of the associated air quality issues (i.e., more frequent for some pollutants, less frequent for others)
e. Assess the option of developing the NAAQS for related pollutants in parallel
f. Provide economic incentives (e.g., additional grants for diesel PM reductions, with a streamlined process)
g. Provide other incentives (e.g., more time as a trade-off to better control strategy/technology selection)
h. Develop tools and data to support integrated SIPs (per Team 2 recommendations)
i. Invest resources in:
    i. a test case for development of an AQMP as a comprehensive air quality management plan for a State
    ii. improved data and tools (e.g., integrated emissions inventory database, an integrated control technology and cost database, and local-scale modeling tools) for development of AQMPs
j. Assess options for "permit streamlining" (see Team 2 paper)

Scenario

1. **Within Current AQM**
2. **Transition to AQMP**
3. **New AQM Framework**

Consensus/Concern



Air Quality Planning Process

Recommendation: Stimulate innovative and stakeholder driven local or tribal airshed planning to manage pollution growth to prevent chronic erosion of air quality leading to NAAQS violations, PSD increment violations or causing NAAQS violations in downwind communities.

- Local governments be required to integrate air quality planning into their land use, roadway and community development plans in a structured way.
- EPA and States develop a tiered regulatory planning structure geographically building up from local /tribal communities, to airsheds, to state and possibly multi-state Air Quality Management Plans.
- The new regulatory structure be: pilot tested in one or more locales; provide strong incentives and flexibility for creative solutions; apply high rigor and demand proven results in locales where air pollution growth is strong; yet, allow for off-ramps, lower rigor or longer planning cycles if locales do not exhibit NAAQS violations or chronic pollution growth.

Scenario

1. Within Current AQM
2. Transition to AQMP
3. **New AQM Framework**

Consensus/Concern

Air Quality Planning Process

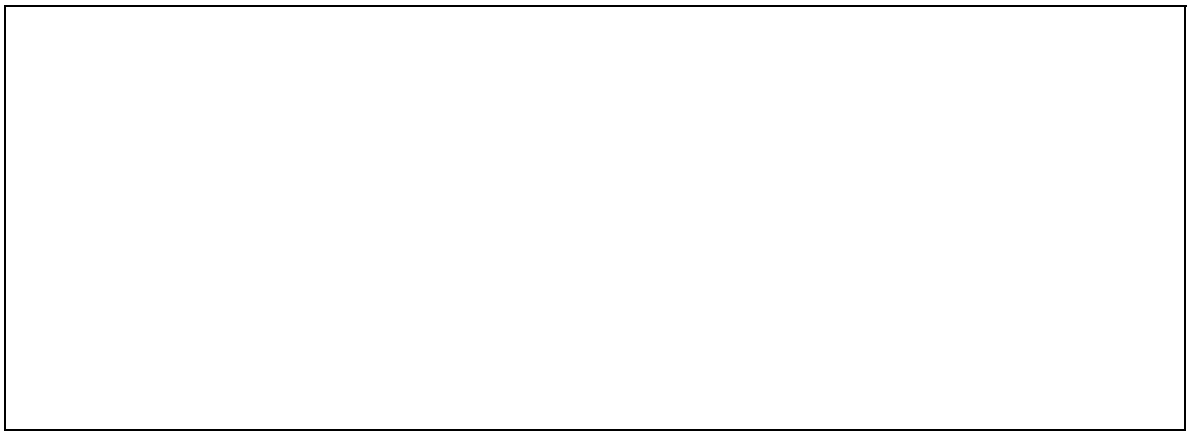
Recommendation: Improve and coordinate interstate planning and rulemaking to better reflect the science of air pollution formation and transport.

- Use regional airsheds (option C) to roughly approximate the most critical areas of influence. Areas of violation can be applied simply as the areas not meeting ambient air standards.
  - Resist use of political boundaries when defining airsheds unless supported by science.
  - Monitoring and major sources/source regions should be considered.
  - Regional modeling and meteorological modeling should also be considered.
  - Nonstandard forms of measurements such as aircraft, balloon, satellite, mountain-top, building/tower monitors could prove useful.
  - While MSAs may be useful in identifying the urban extent of metropolitan emissions, the boundary is generally too small to be considered an airshed.
  - Once an airshed is defined, efforts should be made to understand the science of what creates it, special topographical and meteorological issues, population health risk, and other environmental and socioeconomic impacts.
  - Airshed Planning Regions could contain several nonattainment areas.
  - Airshed Planning regions would not necessarily include entire states, nor would they necessarily be entirely contained within the existing RPOs.
  - The existing RPOs may contain multiple Airshed Planning Regions
  - Consider overlapping of airsheds to include upwind source areas that contribute to problem areas.
  - States may opt into upwind airsheds.
  - ➢ Nonattainment areas could still represent areas with poor air quality and be the focus of state/tribal SIPs.
  - ➢ Airshed Planning Regions look at the regional context of air pollution sources and how it affects nonattainment areas and other areas of poor air quality. Efforts should be focused on building successful state/tribe interrelations and SIPs.
  - ➢ Regional Planning Organizations could continue to be the forum for bringing the regional states together for coordination and planning. Beyond the RPO's mandate for studying regional haze, they would now also be charged with coordinating the work of the airsheds within, or partially within their borders.
  - ➢ National - EPA will still need to seek out pollution controls that are best implemented on a national or sub-national level and will provide resources as needed to study air pollution emissions, transport, and the coordination of the RPOs so that inter-RPO transport and airsheds that span multiple RPOs are properly considered.

Scenario

1. Within Current AQM
2. Transition to AQMP
3. **New AQM Framework**

Consensus/Concern



AQM Coordinating Function

Recommendation: Proposal 1

- Alternative A: FEDERAL AGENCIES SHOULD PREPARE AND MAKE AVAILABLE TO OIR, OMB AND THE PUBLIC STATEMENTS OF AIR QUALITY, ENERGY, TRANSPORTATION [AND GREENHOUSE GAS EMISSION] EFFECTS FOR RELEVANT AGENCY ACTIONS. ANY FINAL AQM DESIGN EPA ENDORSES OR ADOPTS SHOULD BE CONSIDERED A RELEVANT AGENCY ACTION FOR PURPOSES OF THIS REQUIREMENT

- Alternative B: EPA SHOULD WORK WITH AFFECTED STAKEHOLDERS TO PREPARE A STATEMENT OF ENERGY EFFECTS FOR ANY FINAL AQM DESIGN EPA ENDORSES OR ADOPTS AS A RESULT OF AQM SUBCOMMITTEE TEAM 1'S RECOMMENDATIONS IF EPA DETERMINES, AFTER CONSULTATION WITH AFFECTED STAKEHOLDERS, THAT THE AQM DESIGN WOULD LIKELY HAVE A SIGNIFICANT ADVERSE EFFECT ON ENERGY.

Scenario

1. **Within Current AQM**
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 2 THE AQM PROCESS SHOULD SUPPORT TRANSPORTATION AND LAND USE SCENARIO PLANNING AT THE MULTI-JURISDICTIONAL, TRIBAL AND LOCAL LEVELS AND OTHER MEANS TO IDENTIFY EMISSIONS REDUCTION OPPORTUNITIES AND IMPROVE TRIBAL AND LOCAL ENGAGEMENT.

Scenario

1. **Within Current AQM**
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 3 THE AQM PROCESS SHOULD INCLUDE INCENTIVES (INCLUDING, BUT NOT LIMITED TO, MORE MEANINGFUL FORMS OF CREDIT, REGULATORY INCENTIVES AND ECONOMIC INCENTIVES) FOR VOLUNTARY AND INNOVATIVE LAND USE, ENERGY, AND TRANSPORTATION TECHNOLOGIES OR APPROACHES.

Scenario

1. **Within Current AQM (e.g. self-certification)**
2. **Transition to AQMP (e.g. permit streamlining)**
3. **New AQM Framework (e.g. tax credits)**

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 4 EPA SHOULD SEEK TO ESTABLISH AN INTER-AGENCY LIAISON GROUP WITH DOE, NRC, FERC, AND DOT TO EXPLORE ISSUES AND OPPORTUNITIES FOR COORDINATING ENERGY, TRANSPORTATION, GREENHOUSE GAS AND AIR QUALITY GOALS.

Scenario

1. **Within Current AQM**
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 5 DEVELOP PROGRAMS THAT FOCUS ON REDUCING PUBLIC DEMAND FOR POLLUTING ACTIVITIES, ESPECIALLY NONESSENTIAL ACTIVITIES. SUCH PROGRAMS COULD INCLUDE INCENTIVE PROGRAMS FOR ENCOURAGE USE OF LOWER-POLLUTING ACTIVITIES, EDUCTION PROGRAMS, AND TAX AND USE RESTRICTIONS.

Scenario

1. **Within Current AQM (e.g. education)**
2. **Transition to AQMP (e.g. permit streamlining)**
3. **New AQM Framework (tax credits)**

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 6 EPA SHOULD ANALYZE THE IMPACT CLIMATE CHANGE WILL HAVE ON FUTURE AIR QUALITY OBJECTIVES.

Scenario

1. **Within Current AQM**
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 7 ANALYZING EXISTING STATUORY LAWS TO DETERMINE THE EXTENT TO WHICH THEY CAN BE USED TO ENCOURAGE POLLUTION PREVENTION, ENERGY EFFICIENCY AND RENEWABLE ENERGY.

Scenario

1. **Within Current AQM**
2. **Transition to AQMP (depending on results of analysis)**
3. **New AQM Framework (depending on results of analysis)**

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 8 EPA SHOULD WORK WITH STATE AIR AND ENERGY ORGANIZATIONS, TRIBAL GOVERNMENTS AND REGIONAL AIR QUALITY PLANNING ORGANIZATIONS TO OVERCOME POTENTIAL BARRIERS TO CLEAN ENERGY/AIR QUALITY INTEGRATION.

Scenario

1. **Within Current AQM**
2. **Transition to AQMP (innovative financing strategies)**
3. **New AQM Framework (innovative financing strategies)**

Consensus/Concern

AQM Coordinating Function

Recommendation: Proposal 9 TAKING CLIMATE CHANGE INTO ACCOUNT IN AIR QUALITY MANAGEMENT STRATEGIES.

Scenario

1. **Within Current AQM**
2. Transition to AQMP
3. New AQM Framework

Consensus/Concern

Team 1
Issue Papers

Team 1 Issue Papers Table of Contents

Issue Group 1: Defining the Problem and Setting the Right Priorities

Issue Group 2: Air Quality Planning Process

- **Reasonable Performance Levels**
- **Continuous Improvement (new version)**
- **Seasonal and Episodic Controls (new paper)**
- **Role of Monitoring and Modeling in Future AQM Planning**
- **Multipollutant Planning Approach (new version)**
- **Local Air Quality Planning**
- **Boundaries (new version)**

Issue Group 3: AQM Coordinating function

These papers should be considered DRAFTS. These drafts are meant to guide discussions of the AQM Subcommittee and do not represent decisions or opinions made by the EPA, the CAAAC, or the AQM Subcommittee.

Team 1—Issue Paper #1
Defining the Problem and Setting the Right Priorities

Realities

- Science is always improving our understanding of air pollution and its impacts on public health
- We cannot expect perfect understanding of the effects of air pollution on health and synergistic effects
- Localized risks can be very different from national risks and can vary from area to area

In order to improve the system's ability to focus on the most important priorities, it needs 1) continuously improving data, 2) a good system for setting initial priorities and flexibility to shift where to address new priorities, and 3) a good system of accountability to verify that progress on the right issues is occurring. The recommendations below are set forth in these three categories.

Recommendations

Recommendation 1: Improve accuracy and availability of environmental and health data to enable more complete characterization of air quality, emissions, and environmental and health outcomes and to facilitate the assessment and characterization of relative risks.[1]

A. Improve air quality data: continually improve air quality monitoring network to collect data on pollutants of concern, in areas of concern.

   Current barriers include:
   - Perceived or real legal or political disincentives to locate additional criteria pollutant monitors or to evaluate industrial monitoring such as CEMS.
   - Resistance due to CAA interpretation and accepted historical practice to using advanced assessment techniques that characterize contiguous nonattainment boundaries such as model-data fusion to define nonattainment areas.
   - Lack of funding
   - Technology not developed or implemented effectively (continuous PM10-2.5, continuous metals, ambient speciated mercury monitoring, ammonium monitoring)
   - Communication/decision making responsibilities split among different levels of government

[1] We recognize that some of these recommendations are the same as or similar to recommendations made during Phase 1 of the AQM process. That makes sense because they are fundamental and long term activities that are a necessary part of the longer term vision for improving the system we use to set and regularly assess our priorities. Additional specific recommendations regarding monitoring and emissions inventories may be developed after EPA provides an update of progress on the Phase 1 recommendations.

Recommendations for specific actions:

- Action 1: EPA has already proposed to work with states, locals, tribes and other stakeholders to review the national monitoring system; EPA should revise monitoring requirements as appropriate to allow states to shift resources in line with results of review. (Bin 1)
- Action 2: EPA should provide better outreach and establish a category of monitoring devices (or practices) that can be used for research, informational, policy-setting, and public information purposes but will not be used to set nonattainment boundaries or bring other regulatory programs into play and work with states, locals, tribes and other stakeholders (Bin 2 or 3)
- Action 3: EPA, in partnership with other Federal agencies, should develop a more integrated observation strategy that addresses gaps in rural and elevated observations critical to supporting ecosystem, regional and intercontinental transport assessments. As part of this strategy, the incorporation of emerging environmental data sets from satellites, air quality forecasting and chemical data assimilation (i.e., integration of models and observations) should be tasked as a requisite for advancing air quality assessment capabilities over the next two decades. EPA should continue to invest in the overarching Global Earth Observation System of Systems (GEOSS) to support multiple air quality assessments. (Bin 1)

B. Fill gaps in emissions inventories and air quality modeling.

Current barriers include:

- Inconsistent and/or delayed reporting by states
- Lack of adequate emission factors
- Poor input data (e.g. use of out of date VMT and questionable projections to estimate mobile source emissions)
- No current regulatory mechanism for quantifying emissions from small stationary and area sources
- Inconsistent development across pollutant categories compromising effective multiple pollutant emission inventories
- Omission of climate forcing gases such as CO2 which will require direct integration in future modeling assessments that link air quality and climate interactions
- Limited use of air quality models in a predominantly prospective and independent (from observations) mode.

Recommendations for specific actions:

- Action 1: Target resources towards the improvement, demonstration and development of CEMS technology to make it more cost-effective and more accurate, especially for emission sources for which CEMS technology is not currently available, accurate or within reasonable costs. EPA should encourage CEMS technology for the pollutant of

interest (not a surrogate) as the default compliance monitoring technology using incentives for future rules. (Bin 1)

- Action 2: Develop adequate emissions infrastructure so emissions estimates can be shared across stakeholders (S/L/T and industry) Focus should be on developing better numbers in inventory as opposed to trying to quantify the uncertainty at the end. (Bin 1)
- Action 3: Emphasize the use of air quality models in retrospective and current time applications as well as prospective applications. Models provide a needed complement to data in accountability assessments in which reconstructed modeling of past years allows for checking original assumptions and success of rule implementation. (Bin 1)
- Action 4: Develop the needed interfaces between air quality and watershed models to better link air program rules with deposition related impacts on ecosystems. (Bin 1)
- Action 5: Use current air quality models to quantify co-benefits across multiple pollutant categories, recognizing the limitations (due to scarcity) of ambient data to address interactions of HAPs with PM and ozone. (Bin 1)
- Action 6: Integrate models and ambient data to provide more robust, spatially, temporally and compositionally enhanced air quality surfaces for accountability, regulatory, ecosystem and health assessments. (Bin 1)

C. Improve coordination and communication between EPA and external partners, including health agencies, academic institutions, and the medical community.

Current barriers include:

- History of operating in isolated institutional environments; few current mechanisms or statutory drivers for coordination
- Difficulties in reconciling priorities between different parties
- Due to privacy concerns, access to actual health data is limited and only available to States or through insurance agencies

Recommendations for specific actions:

- Action 1: States, EPA and CDC should periodically hold a joint environmental health summit on a regular schedule (perhaps every five years) to evaluate current priorities, identify new issues, etc; involve stakeholders in development of topics. (Bin 1)
- Action 2: State environmental agencies should take steps to increase coordination with state health agency (for example, regular meetings of senior staff to discuss priorities and common issues; formation of task forces on issues of environmental health jointly headed by environmental and health chiefs—e.g. asthma, lead paint; joint brown bag or other informal events/seminars and the like where staff from

environmental and health agencies can learn what each other do, share information and discuss issues of common interest) (Bin 1)

D. Improve the collection of control and cost data to facilitate analysis of both projected and actual implementation costs for major regulations.

Current barriers include:

- Current information on available controls and associated costs is minimal; projections of the costs of implementing a major rule rely on partial data, at best. This makes realistic assessments of cost/benefit tradeoffs difficult.
- Furthermore, we know little about what controls are actually implemented by controlled industries and specific sources. This makes ex post evaluation of actual implementation costs difficult.

Recommendations for specific actions:

- [To Be Determined]

Recommendation 2: Improve the priority setting process by creating mechanisms to systematically realign resources and regulatory focus toward areas of greatest health and environmental risk.

Recommendations for specific actions:

- Action 1: States, in close cooperation with their regional offices, should develop comprehensive, multipollutant air quality plan and review/update every five years. The plan should address, but not be entirely driven by SIP or other federal requirements, and should be tailored to the air quality situation in the particular state and the state's public health needs. State health agencies should be involved in developing plan. (Bin 1 or 2)
- Action 2: EPA should use the updated information provided by the S/L/Ts as a result of their 5 year review/update for developing national regulatory priorities. (Bin 1)
- Action 3: EPA and CDC working with S/L/T should produce an Air Quality Health Trends report that links changes in ambient air quality to health data on a regular (five year?) cycle, using the best available information and recognizing the limitations of those data. (Bin 1)
- Action 4: Improve the link from improved science to improved policy: develop new mechanisms to encourage more rapid adjustment of policy priorities in the face of new scientific information. Redirecting resources and resetting programmatic priorities is a difficult task which involves overcoming inertia at both the federal and state level. What types of mechanisms are most effective in overcoming this inertia—incentives? Traditional regulatory hammers (command and control approaches)? Broader application of "innovative" approaches such as emissions trading and declining caps? (Bin 1)

- Action 5: Focus on multipollutant approaches and initiatives, both in data collection and in priority setting. Multipollutant work encourages collaboration and is more likely to lead to least-cost solutions to multiple air quality problems as simultaneous emissions reductions and control strategies are explored. Furthermore, multipollutant work encourages the explicit consideration of necessary tradeoffs, enabling risk-risk decisions to be made more transparently. (Bin 1)

Recommendation 3: Improve accountability by systematically monitoring progress and evaluating results, working to ensure that data collection is meaningful and that feedback loops exist to ensure that actual environmental results inform the future allocation of resources and the establishment of priorities.

Recommendations for specific actions

- Action 1: Adjust the NAAQS Review Process to be more timely and efficient. Rather than a strict every five year review requirement, which EPA rarely if ever meets, have the CASAC or a CASAC-like group review the standards on a regular (two year, e.g.) basis, with opportunities for public input, and make a recommendation as to which standards are in need of review, based on whether there is sufficient new information that warrants review. (Bin 2)
- Action 2: EPA, in close consultation with States, should develop an air accountability framework providing an overarching structure for priority setting. The accountability framework allows for a more technically sound assessment approach linked directly to program implementation and improvement and not constrained by historical approaches. By following basic accountability steps, a concerted effort would be placed on defining and understanding the linkages along the source to air quality to exposure to effects continuum, allowing for critical review of rule implementation success. Accountability efforts should focus on CAIR, CAMR and mobile source rules. (Bin 1)
- Action 3: EPA should work with CDC and other agencies and stakeholders to improve indicators that can be used to assess the impact of changes in air quality on public health and the health of ecosystems. These agencies should encourage research in areas that will help develop indicators and that conducts assessments. (Bin 1)
- Action 4: EPA and the S/L/T should evaluate the progress that is being made under various regulatory control programs, by assessing compliance rates, actual reductions achieved, and in practice cost-benefit analysis. Incorporate accountability up front in the system by developing mechanisms (or using existing ones, such as through Utility Regulatory Commissions or required tax filings) to collect information from sources regarding actual compliance technologies chosen and actual costs for compliance or identifying how we can

measure that the results we sought were achieved. Incorporate mechanisms for developing and collecting these data into new and revised regulations. (Bin 1)

Issue Paper
Reasonable Performance Levels
March 15, 2006
AQM Subcommittee Team 1, Group 2

Goal.

All sources of air pollution, regardless of size or location, will be required to have in place emission controls that meet reasonable performance level (RPL) requirements. EPA will promulgate rules governing how reasonable performance levels are established and how frequently RPLs must be reviewed and updated. In concept, RPLs would constitute a minimum set of performance standards nationwide, providing a foundation for additional controls that may be needed to address existing or potential area-specific air quality management problems.

Attributes.

- Addresses all sources, not just major sources, and provides more standardized control requirements across the country.
- Addresses all pollutants, including toxics, on a multi-pollutant basis.
- Eliminates grandfathering partially or totally depending on the degree to which the concept is implemented.
- Provides a process for achieving gradual improvement in air quality, everywhere.

Benefits.

- Improves air quality in local attainment, maintenance, and nonattainment areas impacted by emissions.
- Establishes minimum standards consistent with longstanding control/treatment requirements in waste management and water pollution control programs.
- Provides reductions in background emissions that might otherwise be transported into areas where such emissions may combine with local emissions to threaten or exceed air quality standards.
- Creates better opportunities to attain standards in nonattainment areas.
- Creates more certainty in areas where monitoring/modeling data is shows threats to air quality standards.
- Offers possibilities for economic development in some areas otherwise not able to grow due to closeness of monitoring/modeled data to air quality standards.

Background.

For years, the Clean Air Act has required certain sources to meet certain emission standards. These include Best Available Control Technology (BACT), Reasonably Available Control Technology (RACT), Lowest Achievable Emission Rate (LAER), and Best Available Retrofit Technology (BART). BACT is required on major new and modified sources in areas meeting

national ambient air quality standards. RACT is required on existing sources in areas not meeting national ambient air quality standards. LAER is required on major new and modified sources in areas not meeting national ambient air quality standards. BART is required for sources in 26 industrial categories built between 1962 and 1977 if those sources have emissions of pollutants above certain thresholds and if the sources are found to contribute to visibility impairment at one or more Class I areas.

In spite of these multiple requirements, many sources have not controlled their emissions to the degree that is feasible. While environmental programs have prohibited untreated discharges of domestic and industrial wastewater for 30 years or more.and open dumping of solid and hazardous materials has been similarly prohibited for many years, there has been no minimum control standard applying to all air pollution sources. Representatives of some sources will point out that many sources have made operational changes or fuel switches that have reduced their emissions to a degree that no source can be called uncontrolled. Yet there are many sources that could be controlled better at a reasonable cost within their respective processes or at their emission points.

Local, tribal, and state agencies continue to struggle to meet national ambient air quality standards. National, regional, and local emission controls have been required on many sources of pollution but local impacts still occur from nearby sources and regional impacts are also felt as pollutants are transported lengthy distances. As air quality standards like the particulate matter standards continue to be tightened, agencies face critical needs to manage air quality in their areas in the most efficient and effective manner possible. Some areas are meeting existing and proposed standards but need to maintain a margin of safety between current air quality readings and those standards. Other areas have been in noncompliance with one or more standards in the past but have returned to compliance and need to maintain compliance in the future. Still others are currently in noncompliance with one or more standards or anticipate being so when new standards are finalized. Many areas desire to create opportunities for future economic development through reducing emissions to the point that new businesses and industries can receive permits regardless of their air quality status.

All of these needs point to the fact that all air pollution control sources should have reasonable controls to produce improvements in air quality that will benefit local and regional areas in the near future. This proposal suggests ways to accomplish these goals that will ensure efficiency, effectiveness, and equity.

RPLs could be established for many emission sources as technology-based performance standards that are revisited on a periodic basis. However, it may be difficult to periodically review and tighten such standards where facilities have already installed pollution controls and where durable goods (such as vehicles, diesel engines and wood stoves) are already in use. Therefore, implementation of the RPL concept would benefit from new tools that can provide businesses and individuals with a continuous incentive to reduce emissions. Such tools may include emission fees, emission caps and product labeling.

Recommendations.

1. All new and existing sources (stationary, area, and mobile) should be required to meet reasonable performance levels. Issues to be resolved would include:

    - What is reasonable.
    - How to mesh the RPL concept with existing control requirements.
    - Compliance timetables.
    - Any exception processes.
    - Roles of upwind states in reasonableness determinations, if any.
    - How often existing sources would have to revisit the adequacy of their emission controls as technologies improve.
    - To what extent can RPLs could be used to promote continuous improvement.
    - Consequences of noncompliance.
    - Legal authorities.
    - Other federal promulgation issues.
    - Resource issues for implementation at the local, tribal, and state level.

2. Reasonable performance levels should be required for all pollutants that directly or indirectly contribute to ambient air quality problems. This would include primary and secondary emissions of pollutants for which a national ambient air quality standard applies, primary and secondary emissions of pollutants that are precursors to compounds for which national standards exist, and emissions of other air pollutants that may cause damage to humans, animals, and/or plants or which may contaminate soils and waterways.

Conclusions.

Various regulatory approaches might be employed to implement these proposals. EPA might propose standards that would be adopted by individual air pollution control agencies and incorporated into their air quality management plans for inclusion in facility-by-facility permits. Standards might be proposed using a permit-by-rule approach. Suggestions have also been made that fees, caps, labeling, or a TRI-approach might be feasible.

The RPL proposal would create a foundation upon which regulatory agencies could build more detailed programs to address nonattainment problems, unacceptable health risks, and environmental contamination. The RPL concept would not by itself be expected to resolve all issues but its implementation should provide more certainty to air pollution control agencies that good air quality can be attainable.

Timeframes would need to be somewhat flexible to allow reasonable time for all sources to achieve the standards. More time should be given where air quality is not being significantly impaired and where sources legitimately need the extra time to complete the required retrofits. Less time should be allowed when substantial health and/or environmental concerns exist and must be resolved quickly to exacerbate unacceptable air quality situations in specific areas.

This proposal represents a substantial new direction for air quality management and will likely not be implementable without considerable dialogue. However, there appears to be a consensus developing within the Air Quality Management Subcommittee that it is time to consider such a proposal. The benefits of this recommendation will be substantial and would appear to justify the efforts that would be necessary to develop and implement the program.

Proposal #6: Continuous Improvement

~~**Team 1 Group 2**~~

Draft Date:—— March ~~15~~30, 2006
Author:——— Jeff Underhill/Barry Elman

Goal: Provide mechanism(s) to encourage/require continuous ~~improvements in emissions~~improvement with respect to emission reductions and air quality

Topics Addressed:

~~1. Transform the SIP process~~
~~2. Provide for continuous progress and accountability (are goals being achieved)~~
~~3. More proactive at problem solving~~

1. Importance of continuous improvement
2. Pros and cons of alternative options for promoting continuous improvement
3. Potential to use a combination of approaches
4. Need for additional analysis

Options:

A. Status Quo – ~~Use of~~Technology-based emissions standards ~~and cap and trade programs~~
B. Cap and ~~Trade~~trade programs
~~B.~~C. Cap and trade programs with continuously declining caps
D. ~~Establish emission~~Emission standard glide-slopes
E. Ambient air quality standard glide-slopes
F. Voluntary improvement programs
~~C.~~G. Emission fee systems
~~D. Establishment of emission standards improvement glide-slope~~
~~E. Establishment of Ambient Air standard glide-slope~~
~~F. Establishment of Voluntary improvement programs~~
H. ~~Establish~~ Industry average performance system (IAPS)
~~G.~~I. State/~~Tribe Local~~tribe regulatory improvement systems
~~H. Reasonable performance levels (RPLs)~~
~~I. Industry Average Performance Standards (IAPS)~~

General Goals:

~~• Everyone and every sector have a duty to reduce emissions.~~
• Provide mechanism(s) for achieving continuous emission reductions from all stationary, mobile and area sources
• Ensure continuous air quality improvement in all geographic regions
~~•~~ • Provide incentives for ~~nonattainment~~on-going development and ~~pre-nonattainment areas to act~~
~~Provide incentives for dynamic~~diffusion of new ~~technology~~control technologies and pollution prevention techniques

~~System must be~~ • Create a flexible ~~in order to~~system that can accommodate changes in science and ~~changes in industry~~air quality planning needs

Background:

~~The Clean Air Act as its currently written is primarily focused on providing the mechanisms for reducing air pollution levels to meet certain ambient levels for health and welfare purposes and it uses emissions standards as one of the tools for doing so. Other than the influences of the market-based cap and trade and emission fee systems that have evolved under the Clean Air Act, there are few mechanisms that require or encourage a process of continuing improvements.~~The Clean Air Act (CAA) , as it is currently written and implemented, relies heavily on technology-based emission standards for reducing air pollutants to meet air quality goals. Technology based emission standards have many positive attributes and can be credited with most of the air quality achievements under the CAA to date. However, such standards may not provide the best mechanism for achieving continuous improvement.

Current epidemiological studies are finding that health benefits for certain pollutants, including ozone and PM2.5, continue to accumulate at a steady rate right down to ambient concentrations of near zero. Therefore, there is a benefit to establishing a program that encourages continuous ~~improvements in~~improvement with respect to emission rates and ambient air pollution concentrations.

The concept of continuous improvement~~s~~ is not ~~a~~ new ~~one.~~ . It is a component of ~~the~~ many state implementation plans (SIPs ~~in many states that~~) (e.g., reasonable further progress requirements), and cap-and-trade programs (e.g., where industries need to ~~meet ambient air pollution goals, it is a component of cap-and-trade programs where sources need to jockey for position to operate~~accommodate increased production under ~~emission caps,~~a fixed cap), and it can be found in offset ratios set for certain nonattainment areas~~, and it is present~~. The concept of continuous improvement is also reflected in the regional haze program ~~that~~ , which seeks to reach natural visibility conditions by 2065, a goal that would virtually require zero anthropogenic emissions.

This paper ~~seeks to review~~reviews several options that can be used to encourage or require continuous ~~improvements in~~ improvement with respect to emissions and ambient air pollution ~~levels~~concentrations.

~~Option A: Status Quo – Use of emissions standards and cap and trade programs~~It should be noted that many of the options identified below for continuous improvement require some type of emissions measurements/estimations in order to gauge progress. In some cases continuous emissions monitors (CEMS) have been developed, standardized, and are in-use. However, other source types rely on emission factors that may or may not be suitable for certain continuous improvement programs without further development.

[NOTE: This paper could serve as a free-standing paper or as an addendum to the paper on Reasonable Performance Levels (RPL). It would complement the RPL paper by laying out options for achieving continuous progress within an RPL framework.]

Option A: Status Quo – Technology-based emissions standards

Timeline: Could be implemented within ~~1 year.~~3-years
Partners: EPA, states and tribes, stakeholders
Costs: Could be implemented primarily through existing cost structures

Technology-based emission standards have historically been applied to a wide variety of stationary, mobile and area sources. These standards ensure that all affected sources achieve a minimum level of pollution control. However, once a source has complied with an applicable standard, that source has no obligation, or incentive, to further reduce its emissions, until such time as the standard is subsequently tightened.

As technology evolves, technology-based emission standards can be tightened and applied prospectively to future new sources. However, once controls have been installed at a facility, those controls will usually remain operational for an extended period, making it difficult to require that they be upgraded or replaced as a result of each subsequent technology review. Although additional emission reductions may be reasonably achievable through pollution prevention measures or enhancements to the existing control device, such opportunities may be site-specific and difficult to impose through uniform regulations.

Periodic technology reviews can also spur the introduction of cleaner products, including durable goods such as motor vehicles, diesel engines and wood burning stoves. However, once these products are purchased they will likely be used for many years. Although further emission reductions may be reasonably achievable through reduced utilization, improved operation and maintenance, retrofit and/or the use of cleaner fuels, such opportunities are also likely to be site-specific and difficult to impose through uniform rules.

In addition to the challenges associated with tightening technology-based standards for sources that have already installed controls, and for durable goods that are already in use, certain small and nontraditional sources may be difficult to control through such standards altogether. For example, a vast assortment of consumer products is manufactured or imported each year by thousands of companies, with products and formulations continually changing. Since it is impossible to develop standards that are tailored specifically to each individual product, regulators are usually compelled to establish least common denominator standards for a limited number of broad product categories – effectively absolving many (if not most) products within each category of any obligation to reduce emissions. Regulators may also have difficulty tightening these standards in the future where even a small number of products (or uses) within a category are technically constrained, making continual progress slow at best, even for new products.

Pros: The existing regulatory framework is already largely based on technology-based standards. Such standards can be readily used to establish and periodically update minimum reduction requirements for new stationary, mobile and area sources, as well as for some existing sources.

Cons: Certain small and nontraditional sources may be difficult to control through such standards. Regulators may also have difficulty periodically tightening these standards, particularly for sources that have already installed controls and for products that are already in use. A continuous technology review for each source type would likely be needed and could be resource intensive.

Option B: Cap and trade programs

Timeline: Variable; could be implemented for some source categories within 3-years
Partners: EPA, states and tribes, stakeholders
Costs: Could be implemented primarily through existing cost structures.

Under cap-and-allocation trading systems, regulators establish an emissions target (a "cap") for a group of sources and a schedule for achieving that target for a specific area and control period based on modeling and air quality goals. Tons of emissions representing individual "shares" of the cap are then allowed or "allocated" to each source. The source documents its actual emissions over the control period and compares this to its "balance" of available allocations. Compliance is demonstrated by showing actual emissions less than or equal to allocations.

Sources may achieve compliance by reducing their emissions or by buying emissions allocations from other sources (i.e., "trading"). "Banked" emissions allocations provides a way for a source which exceeds its allocated tons to "compensate" for this excess by deducting previously unused allocations from the source's available balance. Periodically, the performance of the system ~~is~~ can be reviewed and regulators ~~may~~ can adopt a lower target. ~~Sources~~ Provisions may also be made to allow sources that are not charged with reduction requirements ~~may choose~~ to "opt-in" ~~to~~ and participate in the system.

Emission cap and trading programs can create a continuous incentive to reduce emissions. ~~Sources subject to these programs must demonstrate at the end of each reporting period that they hold a sufficient number of emission allowances to cover their actual emissions.~~ The ability to sell unused allowances, or save them for later use, gives all participating companies a powerful ongoing financial incentive to ~~explore~~pursue cost-effective emission reduction opportunities ~~for lowering their emissions. Most~~ .
In addition, companies in growing industries ~~would~~ have to continuously reduce their emissions (per unit of production) in order to meet ~~growing~~ increased demand for their goods and services without exceeding the cap. Under some cap and trade programs, allowances are retired at a certain rate in order to provide for continuous improvement.

Pros: ~~System is simple~~The cap and trade system is in place for ~~the largest of emission~~certain large source categories. ~~The market based system has been proven to be better than expected in~~ (e.g., electric power plants), and could potentially be extended to other source categories. This market based system has been proven effective at reducing emissions ~~faster and farther~~ at lower cost than standard command and control programs.

~~Cons: Cap and trade is designed to meet specific ambient goals and is generally static. While efficiencies~~, and ~~improvements would be required over time to stay under the cap, there is no built-in mechanism for continuous ambient improvements. Standards~~ has spawned major innovations in pollution control and~~/or caps must be revised or new ones proposed in order to achieve ambient improvements. Such a process is likely to be cumbersome under current design.~~

~~Option B: Cap~~ prevention, including advances in scrubber technology, fuel cleaning, fuel blending and ~~Trade with continuously declining cap~~environmental dispatching.

~~Timeline: Could be implemented within 1-year.~~Cons: This system is still untested for most source categories. Trading programs require accurate methods for measuring emissions (e.g., continuous emissions monitors or mass balance calculation techniques), and these methods may be excessively difficult or expensive for some stationary, mobile or area sources to implement. Trading programs also require the development of allowance tracking systems. Caps are designed to meet specific ambient air quality goals and are generally static. While continuous improvements would be required for companies in high growth industries to stay under their caps, there is no built-in mechanism for continuous ambient improvement. Caps must be periodically tightened or allowances must be returned in order to achieve continuous ambient improvement.

Option C: Cap and trade programs with continuously declining caps

Timeline: Variable; could be implemented for some source categories within 3-years
Partners: EPA, states and tribes, stakeholders
Costs: Could be implemented primarily through existing cost structures~~.~~

Emission cap and trading programs with a declining cap ~~can~~ create a continuous incentive to reduce emissions~~.~~ Sources subject to these programs must demonstrate at the end of each reporting period that they hold a sufficient number of emission allowances to cover their actual emissions. ~~These sources would also need to anticipate improvements needed in time for the next progress time landmark.~~ The ability to sell unused allowances, or save them for later use, gives all participating companies a powerful ongoing financial incentive to ~~explore~~pursue cost-effective opportunities for lowering their emissions. ~~Most industries would have to continuously reduce their emissions (per unit of production) in order to meet growing demand for their goods and services without exceeding~~Beyond this, affected sources, collectively, must anticipate and implement the measures needed to remain in compliance after each incremental reduction in the cap.

~~Pros: System is simple and in place for the largest of emission categories. The market based system has been proven to be better than expected in reducing emissions faster and farther than standard command and control programs. Efficiencies and improvements would be required over time to stay under the cap, and further improvements would be needed to stay under the landmark caps at each point in the future.~~ A program for establishing a steady rate of declining caps could be established through the retirement of trading allowances at a certain rate per year. The rate of retirement, thus the rate of the declining cap, could be adjusted to capitalize on major technological breakthroughs.

~~Cons: Declining caps would require tremendous insight into the technology that might be available at future landmark dates, otherwise, there would be delayed improvements several years after new technology becomes available. Current~~Pros: The cap and trade system is in place for certain large source categories (e.g., electric power plants), and could potentially be extended to other source categories. This market based system has been proven effective at reducing emissions at lower cost than standard command and control programs, and has spawned major innovations in pollution control and prevention, including advances in scrubber technology, fuel cleaning, fuel blending and environmental dispatching. Continuous progress in reducing emissions would be required from affected sources, and continuous improvement in air quality would be assured, as the cap declines progressively in the future.

Cons: This system is still untested for most source categories. Trading programs require accurate methods for measuring emissions (e.g., continuous emissions monitors or mass balance calculation techniques), and these methods may be excessively difficult or expensive for some stationary, mobile or area sources to implement. These programs also require the development of allowance tracking systems. Some industries may object to potential constraints on production. Currently, caps are ~~now generally~~ tied to meeting ambient air quality standards. What will be the driving force for continued improvements once the ~~ambient air~~ standards are met?

Option D: Emission standard glide-slopes
~~Option C: Establish emission fee system~~

Timeline: ~~Could be implemented within 1-year.~~
Partners: EPA, RPOs (states and tribes), stakeholders
Costs: –

~~Emission fees~~ Declining emission standards can create a continuous incentive to reduce emissions in order ~~to lower total fee payments over time. They spur emission reductions from all sources and/or activities covered by the fee and encourage continuous improvement all the way to zero emissions. Even where the fee charged per unit of pollution is relatively modest, fee programs can result in the collection of large sums of money. These funds can be (a) turned over to the federal or state Treasury, (b) used to finance diesel retrofit programs and other initiatives designed to improve~~stay within future emission standards. Such a program could be implemented for source categories that have some sort of continuous emissions monitoring and could proceed at the rate of expected new technology improvements. Industry would have the ability to plan future improvements with known future limits.

Pros: Relatively simple in application. Tighter emission limits applied and CEMS used to track compliance. For large source categories, infrastructure is already in place.

Cons: Would include only those sources where accurate continuous emissions measurements can be made. Declining standards would require tremendous insight into the technology that might be available at future landmark dates. Otherwise, there would be delayed improvements several years after new technology becomes available.

Option E: Ambient air quality~~, or (c) returned in some manner to manufacturers or consumers.~~

~~Pros: Many states already charge emission fees of some sort, thus the infrastructure is generally already in place for a fee system. Using fees to fund other improvement programs produces a double-win in terms of continuous improvement.~~

~~Cons: Fees would need to increase over time as emissions lower in order to maintain steady levels of initiative funding, otherwise there would be a degree of declining benefit over time. Beyond the larger point sources, estimating emissions in other sectors would require a system of emissions estimate and the development of tracking and fee collection systems.~~

~~Option D: Establishment of emission standards improvement~~ standard (AAQS) glide-slopes

Timeline:—
Partners: EPA, RPOs (states and tribes), stakeholders
Costs:———

Declining ~~emission~~ambient air quality standards can create a continuous incentive to reduce emissions in order stay within newer future ~~emission~~ standards. ~~Such a program could be implemented on source categories that have some sort of continuous emissions monitoring and could proceed at the rate of expected new technology improvements. Industry would have the ability to plan future improvements with known future limits~~Under such a system, sources can emit pollutants to a level that they do not significantly contribute to violations of future standards, similar to how permitting is conducted. Air quality modeling (dispersion and regional) would be a necessary part of anticipating future emission requirements.

In order for a program of steadily declining AAQS to be successful, it will require additional continuous improvement programs to break any perceived grandfathering of emissions that meet other regulations, such as emissions standards or emissions caps.

Pros: ~~Relatively simple in application. Emission limits applied and CEMS tracks enforcement.~~ For ~~large source categories, infrastructure is already in place.~~

~~Cons: Declining standards would require tremendous insight into the technology that might be available at future landmark dates, otherwise~~certain pollutants, such as ozone and PM2.5, there ~~would be delayed improvements several years after new technology becomes available. Could develop room under the ambient air quality standards for other source sectors to grow, effectively wiping out environmental improvements. Would include only those sources~~ is not a clearly defined threshold where ~~accurate continuous emissions measurements can be made~~pollution concentrations and resulting health impacts can logically be used for defining the NAAQS. For these pollutants, other considerations are used to set what are considered to be reasonable thresholds for NAAQS purposes. Declining ambient air quality standards could reduce the need for using "other factors" over time, and the public would gain additional health benefits with reduced air pollution levels.

~~Option E: Establishment of Ambient Air Quality Standard glide slope~~Cons: As with the current system of regulations, emissions caps and standards would also have to undergo regular review and adjustment to allow for realistic chances of meeting future air quality standards. Declining standards would not necessarily be tied to the technology that might realistically be available at future landmark dates, otherwise there would be delayed improvements several years after new technology becomes available. For non-zero threshold pollutants, there may be a lack of a driving force to reduce the AAQS. Should it be determined that lower AAQS are supportable, delaying the implementation of that standard and corresponding emission reduction programs would possibly conflict with "as fast as practicable."

Option F: Voluntary improvement programs

Timeline:—
Partners:~~— EPA, RPOs (states and tribes), stakeholders~~
Costs:———

~~Declining ambient air quality standards can create a continuous incentive to reduce emissions in order stay within newer future standards. Under such a system, sources can emit pollutants to a level that they do not significantly contribute to violations of future standards, similar to how permitting is conducted. Air quality modeling (dispersion and regional) would be a necessary part of anticipating future emission requirements~~States/tribes and local authorities could establish programs to encourage voluntary emissions reductions beyond those required under regulatory programs. Although changes in polluting practices are not mandated by these programs, companies face a variety of motivations to continuously reduce their environmental impacts. These include the desire to be good neighbors and responsible corporate citizens, and the fear of adverse publicity or loss of sales. For example, product labeling initiatives (e.g., Energy Star) and information reporting initiatives (e.g., TRI) inform consumers and the general public of the environmental benefits/impacts resulting from a company's activities or products, thus promoting a mechanism to market more environmentally friendly products. Voluntary reduction initiatives (e.g., 33/50) can also encourage companies to reduce their environmental impacts. While these programs are not enforceable, failure to achieve publicly stated goals could result in adverse publicity and loss of sales.

~~Pros: For certain pollutants, such as ozone and PM2.5, there is not a clearly defined threshold where pollution concentrations and resulting health impacts can logically be used for defining the NAAQS. For these pollutants, other considerations are used to set what are considered to be reasonable thresholds for NAAQS purposes. Declining ambient air quality standards could reduce the need for using "other factors" over time, and the public would benefit from continued health benefits with reduces air pollution levels~~Pros: Simple to implement since there would be no legal requirement to implement or track, although most states/tribes would probably want to track voluntary reductions.

~~Cons: Under the current system of regulations, emissions caps and standards would also have to undergo regular review and adjustment to allow for realistic chances of meeting future air quality standards. Declining standards would not necessarily be tied to the technology that might realistically be available at future landmark dates, otherwise there would be delayed improvements several years after new technology becomes available. For non-zero threshold pollutants, there may be a lack of a driving force to reduce the AAQS. Should it be determined that lower AAQS are supportable, delaying the implementation of that standard and corresponding emission reduction programs would possibly conflict with "as fast as practicable."~~Cons: Reductions would probably not be SIP/TIP creditable

~~Option F: Establishment of Voluntary improvement programs~~Option G: Emission fee systems

Timeline:—— Variable; could be implemented for some sources within 3-years.
Partners:—— EPA, states and tribes, stakeholders
Costs:———

~~States/tribes and local authorities could establish programs to encourage voluntary emissions reductions beyond those required under other programs. The concept is that businesses want to be good neighbors and/or would benefit from efficiencies that might arise under voluntary programs~~Emission fees create a continuous incentive to reduce emissions in order to lower total fee payments over time. They spur emission reductions from all sources and/or activities covered by the fee and encourage continuous improvement all the way to zero emissions. Even where the fee charged per unit of pollution is relatively modest, fee programs can result in the collection of large sums of money. These funds can be (a) turned over to the federal or state Treasury, (b) used to finance other

initiatives designed to improve air quality, such as diesel retrofit programs, or (c) returned in some manner to manufacturers or consumers.

~~For example, information reporting and product labeling programs inform the public of the environmental impacts resulting from a company's activities or products. Although changes in polluting practices are not mandated by these programs, companies face a variety of motivations to continuously reduce their environmental impacts. These include the desire to be good neighbors and responsible corporate citizens, and the fear of adverse publicity or loss of sales~~Pros: Many states already charge emission fees of some sort, thus some infrastructure is already in place for a fee system. Using fees to fund other environmental improvement programs (e.g., diesel retrofits) produces a double-win in terms of continuous improvement.

~~Pros: Simple to implement since there would be no legal requirement to implement or track, although most states/tribes would probably want to track voluntary reductions.~~

~~Cons: Reductions would probably not be SIP/TIP creditable. Few economic incentives beyond operational efficiencies or goodwill to drive emission reductions. Historically, voluntary air pollution programs have had limited participation.~~

~~Option G: Establish State/Tribe regulatory improvement system~~

Cons: EPA and state agencies may have limited legal authority to levy and/or use fees. Establishing the appropriate level of the fee can be complex and contentious. Fee programs require accurate methods for measuring emissions which may be difficult or expensive for some stationary, mobile or area source categories to implement, and these programs necessitate the development of emissions tracking and fee collection systems. Fees would need to be increased over time, as emissions are reduced, if the goal were to maintain a steady level funding for other environmental initiatives.

Option H: Industry Average Performance System (IAPS)

Timeline:—
Partners: EPA, RPOs (states and tribes), stakeholders
Costs:———

~~State and Tribes could be required to develop their own continuous improvement system based on their own interests and priorities. This could be done on a completely voluntary basis (i.e., not much different from what exists today), or could have basic parameters set by federal regulations. Many of the options discussed in this paper could be considered in state/tribe programs. States and tribes may be in the best position to develop emission targeted programs for continuous improvement. Establishing continuous ambient improvement programs may be outside of local capability and may require coordination on a regional and/or national basis.~~ IAPS is a competitive, market-based system that is self-governing for air pollution control. IAPS seeks to have current air pollution expenditures spent in a way that maximizes environmental benefit and flexibility for sources. Sources in a given industry are charged a fee each year based on their emissions. The "pot" is refunded to the same sources, but based on output. As a result, cleaner-than-average sources become net payees and dirtier-than-average sources become net payers. This creates a continuous incentive for sources to reduce emissions. Each year sources choose the cheaper

option: further reducing their emissions (and paying less into the "pot"), or paying the per-ton fee for each ton they are currently emitting.'

~~Pros: States/tribes can customize continuing improvement programs that meet their needs. Can target degree of improvements that states/tribes feel are most important to them.~~

~~Cons: Unless coordinated on a multi-state/tribe basis, goals may conflict with transported pollution realities. Many states/tribes have laws that prohibit their programs from exceeding the stringency set by federal programs, therefore federal programs would still need to be designed and mandated to some degree. Economic pressures from businesses and their competitive interests could minimize improvement potential.~~

~~Option H: Reasonable performance levels (RPLs)~~
~~Timeline:~~
~~Partners: EPA, RPOs (states and tribes), stakeholders~~
~~Costs:~~

~~Reasonable performance levels (RPLs) could be defined for many emission sources by establishing technology-based performance standards that are revisited on a periodic basis. Such standards, for example, could be readily used to establish minimum reduction requirements for new and modified stationary sources above a certain size threshold. As technology evolves, the standards would be tightened and then applied prospectively to future new and modified sources. However, once a control device has been installed at a facility, that device may be operational for the life of the facility, making it difficult to require its replacement or upgrade as a result of subsequent technology reviews. Although further emission reductions at the facility may be reasonably achievable through a variety of pollution prevention measures or enhancements to the existing control device, such opportunities may be site-specific and difficult to impose through uniform rules.~~

~~Periodic technology reviews can spur the introduction of cleaner products, including durable goods such as motor vehicles, diesel engines and wood burning stoves. However, once these products are purchased they will likely be used for many years. Although further emission reductions may be reasonably achievable through reduced utilization, improved operation and maintenance, retrofit and/or the use of cleaner fuels, such opportunities are likely to be site-specific and difficult to impose through uniform rules.~~

~~In addition to the challenges of periodically tightening technology-based standards for stationary sources that have already implemented controls, and for durable goods that are already in use, certain small and nontraditional sources may be difficult to control through such standards altogether. For example, a vast assortment of consumer products is manufactured or imported each year by thousands of companies, with products and formulations continually changing. Since it is impossible to develop performance standards tailored specifically to each individual product and use, regulators are usually compelled to establish least common denominator standards for a limited number of broad product categories – effectively absolving many (if not most) products within each category of any obligation to reduce emissions. Regulators may also have difficulty subsequently tightening these standards where even a small number of products (or uses) within a category are technology constrained, making incremental progress slow at best. For certain small and non-traditional sources, the imposition of uniform technology-based performance standards may simply not be feasible or practically enforceable.~~

~~For these and other reasons, implementation of the RPL concept would benefit from the use of new tools that can provide businesses and individuals with a *continuous incentive* to reduce emissions. Such tools may include emission fees, declining emission caps and product labeling.~~

These and other innovative tools would reward companies that reduce emissions on a continuous basis and/or penalize those who do not. Rather than relying on regulators to determine the best targets for further reductions, they would harness the ingenuity of hundreds of thousands of industry managers, environmental professionals, scientists, process engineers, marketing experts and other specialists, with intimate knowledge of each and every facility, operation and product.

Pros: Could be readily used to establish minimum reduction requirements for new and modified stationary sources above a certain size threshold

Cons: Once a control device has been installed at a facility, that device may be operational for the life of the facility, making it difficult to require its replacement or upgrade. May be site-specific and difficult to impose through uniform rules. Certain small and nontraditional sources may be difficult to control through such standards. Regulators may also have difficulty subsequently tightening these standards.

Option I: Industry Average Performance Standards (IAPS)
Timeline:
Partners: EPA, RPOs (states and tribes), stakeholders
Costs:

IAPS is a competitive, self-governing system for air pollution control. IAPS seeks to have the current level of national air pollution expenditures spent in a way that maximizes environmental benefit and flexibility for sources. Sources in a given industry are charged a fee based on their emissions. This "pot" is refunded to the same sources, but based on output. As a result, cleaner-than-average sources become net payees and dirtier-than-average sources become net payers. This creates an incentive for sources to reduce emissions and increase productivity. Sources choose the cheaper option: reducing their emissions (and paying less into the "pot"), or paying the per-ton fee for each ton emitted.'

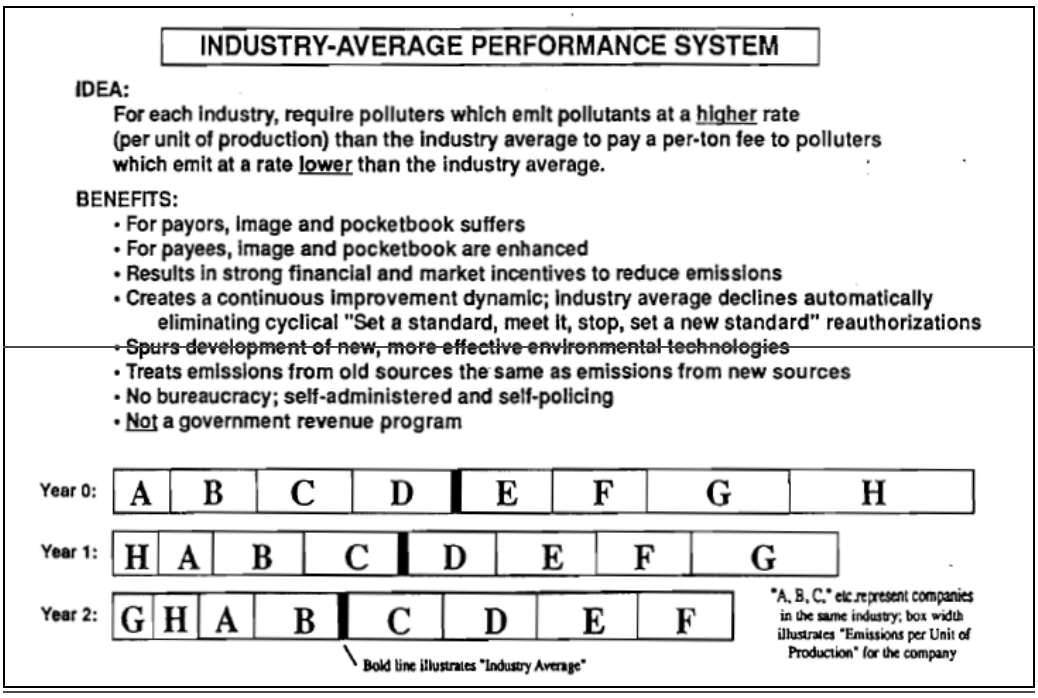
The fee per ton of emissions is set to achieve reductions to a target level. This fee is automatically increased if the targeted reduction level is not achieved. IAPS can easily incorporate multiple pollutants as well as seasonal and geographic differences in pollutant damage. Regulatory overhead is simplified (essentially reviewing CEM and production reports and receiving and disbursing funds). In the absence of traditional "boom or bust" regulatory cycles, capital for control technology innovation is less risky, development is enhanced, and more controls become cost-effective sooner. Best of all, each source that controls causes the overall average to drop, creating a self-reducing continuous improvement dynamic.

Such a system might replace cap-and-trade in certain circumstances.

Pros: Market-based program that leaves rate of progress to businesses and competitive decisions. No declining caps or standards need revision or justification. Need for decreasing pollution levels well below any standards is self-defining and supportable. Once tracking system is defined and setup, IAPS is simple to operate. Reduces regulatory uncertainty.

Cons: New concept could be hard to sell, especially the concept where businesses may have to subsidize more efficient competitors. Increases competitive uncertainty.

Since IAPS is a new concept, the following information is provided to better explain how the developers of IAPS envisioned its application:



The fee per ton of emissions is set to reduce pollution to an initial target level. This fee may be automatically increased if the targeted level is not achieved. IAPS can easily incorporate multiple pollutants as well as seasonal and geographic differences in pollutant damage. Sources choose where, when, how much and through what means to reduce emissions. Regulatory agencies focus on reviewing emission reports and receiving and disbursing funds. In the absence of traditional "boom or bust" regulatory cycles, capital for control technology innovation is less risky, development is enhanced, and more new controls become cost-effective sooner. Over time, each source that reduces emissions causes the overall average to drop, creating a self-perpetuating continuous improvement dynamic. A variation of this program could involve applying some percentage of the collective "pot" into funding other continuous improvement programs.

Pros: Market-based program that leaves specific control measures and rate of progress to businesses and competitive decisions. No caps or standards need to be revised. Provides powerful incentives for long-term, continuous reductions in emissions and air pollution concentrations. Reduces regulatory uncertainty.

Cons: New concept could be hard to sell – especially the notion that businesses may have to subsidize their more efficient competitors. It also increases competitive uncertainty. EPA and state agencies may have limited legal authority to levy fees and rebate them as envisioned by this option. Establishing the appropriate level of the fee can be complex and contentious. As with other fee programs, this option requires accurate methods for measuring emissions, which may be difficult or expensive for some source categories to implement, and it necessitates the development of emissions tracking and fee collection and rebate systems.

Since IAPS is a new concept, additional information is provided in Attachment A to better explain how the developers of IAPS envisioned its application:

Option I: State/tribe regulatory improvement systems

Timeline:
Partners: EPA, RPOs (states and tribes), stakeholders
Costs:

States and Tribes could develop their own continuous improvement systems based on their own interests and priorities. This could be done on a completely voluntary basis (i.e., not much different from what exists today), or under basic parameters set by federal regulations. Many of the other options discussed in this paper could also be considered as state/tribe programs. States and tribes may be in the best position to develop targeted programs for continuous improvement.

Pros: States/tribes can customize continuing improvement programs that meet their needs. These programs can target the degree of improvements that states/tribes feel are most important to them.

Cons: Establishing continuous improvement programs may be beyond the capabilities of most local governments and may require coordination on a state, regional and/or national basis. Unless coordinated on a multi-state/tribe basis, goals may conflict with transported pollution realities. Many states/tribes have laws that prohibit their programs from exceeding the stringency of federal programs, therefore federal programs would still need to be designed and mandated to some degree. Economic pressures from businesses and their competitive interests could minimize improvement potential.

Recommendations:

There may be a number of viable options for promoting continuous improvement with respect to air pollution emissions and ambient concentrations. Further assessment of the options presented in this paper, and possibly some additional options, should be conducted before any specific options are recommended.

It is likely that a combination of options will ultimately provide the best approach. For example, state/tribal improvement systems could be combined effectively with most of the other options listed in this paper. Some approaches may work well for certain source categories and not for others. In any event, it is the opinion of this subgroup that federal guidance and/or technical support (with substantial state/tribe and stakeholder input) would be needed to further develop and successfully employ those options which have not been previously implemented on a significant scale.

Based on historical successes with market-based systems and the general preference of businesses and individuals to control their own decisions, option B (cap and trade – especially for high growth industries), option C (cap and trade with a continuously declining cap), option G (emission fees with revenues used to pay for other environmental initiatives), and option H (IAPS) should receive strong consideration. Each of these options could be fine-tuned and applied to a wide variety of source categories, although each application may present its own unique issues and implementation challenges.

These four market-based options are particularly attractive because they provide a *continuous incentive* to reduce emissions. Moreover, rather than relying on regulators to determine the best targets for further reductions, these options would harness the ingenuity of thousands of industry scientists, process engineers, marketing experts, environmental specialists, and others with intimate knowledge of each and every facility, operation and product.

In certain cases, a program that promotes continuous emission reductions from individual source categories could develop room under existing ambient standards for emissions from other source categories to grow, effectively wiping-out any environmental improvements. Therefore, such programs may be best implemented within a broader air quality planning framework that assures continuous improvement in air quality.

As noted in the background section above, many of the options identified for continuous improvement require some type of emissions measurements/estimations in order to gauge progress. The methodology for performing this task should be reviewed and improved in areas where acceptable techniques have not yet been established. Automation of emissions estimates derived from emission factors could be considered provided there is a reasonable level of confidence in the factors and usage data involved.

ATTACHMENT A

INDUSTRY-AVERAGE PERFORMANCE SYSTEM

IDEA:

For each industry, require polluters which emit pollutants at a higher rate (per unit of production) than the industry average to pay a per-ton fee to polluters which emit at a rate lower than the industry average.

BENEFITS:

- **For payors, image and pocketbook suffers**
- **For payees, image and pocketbook are enhanced**
- **Results in strong financial and market incentives to reduce emissions**
- **Creates a continuous improvement dynamic; industry average declines automatically eliminating cyclical "Set a standard, meet it, stop, set a new standard" reauthorizations**
- **Spurs development of new, more effective environmental technologies**
- **Treats emissions from old sources the same as emissions from new sources**
- **No bureaucracy; self-administered and self-policing**
- **Not a government revenue program**

Overview of IAPS

- Set a dollar value per ton of each pollutant
  - ~~Adjust for inflation annually~~
- Funds are transferred within each industry (e.g., electric utilities, light duty vehicles, heavy duty vehicles, refiners)
  - Each polluter pays per ton
  - Funds distributed based on amount of product produced (or consumed)
  - Result: "dirtier than average" producers In each industry ay "cleaner than average" producers In each industry (measured by pollution rate per unit of production)
- Government supervises fund transfers without necessarily keeping any
- ~~Set ratios of pollutant "values" among major pollutants by scientific analysis~~
- Set overall level of pollutant "values" reasonably consistent with recent levels of air pollution control expenditures

~~Future updates:~~

- ~~Monitor emissions amounts and air concentrations for continual Improvement~~
- ~~If environmental progress Is Inadequate, can Increase, all pollutant "values"~~

Implementation:

- Set a dollar value per ton of each pollutant
  - Dollar value per ton of each pollutant can depend on season, time of day, meteorological conditions, or other scientifically valid variables
  - May vary by location
  - Should adjust for inflation annually
- ~~Set ratios of pollutant "values" among major pollutants by scientific analysts~~
- Pollutant "values" may vary by season and location (horizontal or vertical), based on scientific analysis of affected populations (both in and out of state)
- Set overall level of pollutant "values" (dollars per ton) by political process
- First overall level of pollutant "values" should be consistent with current policy
- Changes should be phased-in, with advance warning

- As technology advances, additional pollution control products become cost-effective without changes in pollutant “values"

- Continuous environmental improvement is built-in without additional legislation
- Monitor emissions amounts and air concentrations for continual improvement
- If environmental progress is inadequate, can increase all pollutant "values"
- When scientific understanding changes, can adjust ratios of pollutant “"values”, but need not change overall level of "values"
- Eventually, specific emission limits may become unnecessary

A New Approach to Air Pollution Regulation...

THE INDUSTRY-AVERAGE PERFORMANCE SYSTEM (IAPS)

IDEA:

Within a given category of polluters (electric utilities, industrial boilers, etc.), require all companies to pay a fee for each ton of pollution emitted, then refund the revenues collected back to these companies based on their production. For pollution sources like cars and large trucks, vary registration fees (within vehicle classes) based on pollution emitted.

RESULT:

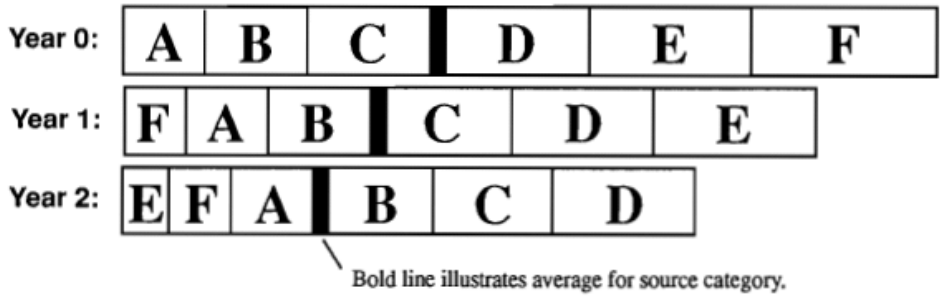
Emissions are discouraged and production efficiency (productivity) is encouraged, because the companies or sources that emit pollutants at a higher rate per unit of production than the category average end up paying (on a net basis) those which emit at a rate lower than the category average.

BENEFITS:

- Protects public health from air pollution that can be eliminated inexpensively, and simultaneously protects industry from unreasonable regulatory costs and cross-industry subsidies.
- Creates strong financial and market incentives to reduce emissions: for net payers, both pocket-book and market image suffer; for net payees, both are enhanced.
- Treats pollution from old sources the same as pollution from new sources.
- Encourages emission reductions all the way to zero, not just to regulatory compliance levels.
- Eliminates traditional battles over culpability among regions, responsibility among industrial sectors, and estimated costs to control; adjustments are easily implemented.
- Eliminates the traditional "boom or bust" regulatory cycle ("Set a standard, meet it, stop, wait, set a new standard"). Industry makes technology choices, not regulators.
- Less regulatory volatility reduces risk for technology developers; spurs development of new, more cost-effective environmental technologies.
- Creates a continuous improvement dynamic; each reduction lowers the category average.
- Allows all pollutants to be integrated into a single regulatory framework.
- Can easily incorporate differential controls based on differential pollution impacts.
- Requires much less bureaucracy; largely self-administered and self-policing.
- Not a government revenue program (i.e., not a "pollution tax").

EXAMPLE:

- A, B, C, etc. are individual companies in the same category of polluters; width of box illustrates their emissions per unit of production.
- When F, a net payer, installs pollution controls (or more efficient production equipment) in Year 1, it becomes a net payee. F's action also reduces the category average, so C, a net payee in Year 0, becomes a net payer.
- Similar effects occur for E, and B, in Year 2 after emission reductions are made by E.



NH Rep. Jeffrey C. MacGillivray
Kenneth A. Colburn, NHDES Air Director

NHDES Air Resources Division
October 17, 1997

Comparison of market based programs

System Component or Policy Issue	IAPS	Cap-and- Allocation Systems
Total Emissions Reduction Target	Yes	Yes
Adjustment (True-up) Based on Actual Emissions	Yes	Yes
Program Performance Assurance Method	Per-ton fees increased automatically if progress is unsatisfactory	Periodic review; lower cap adopted if necessary
Pressures to Inflate Baseline & Allocations	Obsolete concept; not applicable	Yes
Implementation Ease	Immediately implementable	Implementation slowed by allocation inflation disputes
Currency	Real dollars	Allowances
Broad Geographic Applicability	Yes	Yes
Partial Implementation by Geographic Subregions	Yes, but diminishes effectiveness	Yes, but diminishes effectiveness
Source Applicability Minimum Size	Optional; any source with CEMs	Cost-Benefit => 250 tons per season
Other Sources Can "Opt-In"	Obsolete concept; not needed	Yes
Banking	Obsolete concept; not needed	Yes
How Sources Deal With Excess Emissions	Obsolete concept; sources may choose to control or pay per-ton fee; no additional penalties	Deduct allowances from bank or from next year's allotment
Treatment of New, Lower Emitting Sources	Rewarded: become net payees; drives average down; spurs technology development	Penalized; allowances may be unavailable; historical allotment rewards dirtiest and slowest to clean up
Localized Nonattajnment Due to Uncontrolled Upwind Source(s)	Only where control costs exceed per-ton fee (not likely)	Controls applied only where cheapest (more likely)
Regulatory Overhead Costs & Effort	Low	Medium to high: computer transaction networks, compliance inspections, reconciliation, enforcement
Adaptable to Multiple Pollutants	One system; just invoice per-ton fees for each pollutant	multiple systems or Inter-pollutant trading ratios required; not contemplated
Adaptable to Population Density to Better Protect Public Health	Yes; apply density factors to per-ton fee	No
Automatic Continuous Improvement Dynamic	Yes	No
Incentive to Reduce to All the Way to Zero	Yes; pay less and receive more	No; reduce only until compliant or if market price of credits exceeds cost to control

~~Recommendations:~~

~~There are a number of viable options for continuous improvement in air pollution emissions and ambient levels. More study between the options, and possibly some additional options not considered here, should be conducted if a single option is to ultimately be selected. It is quite possible that a combination of options may provide the best approach. For example, voluntary and state/tribe local type measures could be combined effectively with almost any of the options listed in this paper. Or states/tribes might include emission fees as part of its local improvement program. In any event, it is the opinion of this subgroup that federal guidelines, preferably in the form of a federal program with substantial state/tribe and stakeholder input, will be needed in order to meet both goals of continuous improvement (emissions and ambient levels).~~

~~Based on historical successes with market-based systems and industry's preference to control their own decisions, option B (cap and trade with continuously declining cap) and option H (IAPS) should receive strong consideration. Both of these options would need to be fine-tuned to include sectors beyond the traditional focus of electrical generating units (EGUs). The more that additional emission sectors can be added, the greater the likelihood of achieving continuous ambient improvements. Such programs should be designed with considerations of airshed boundaries in order to be most effective.~~

IAPS is a concept developed by Jeffrey C. MacGillivray and Kenneth A. Colburn for possible application in the state of New Hampshire.

Air Quality Management Subcommittee
Team 1 – Issue Group 2

Topic: **Seasonal and Episodic Control Measures**

Draft Date: March 16, 2005

Author: Barry Elman

Goal: Expand the use of seasonal and episodic control measures to achieve air quality standards in areas where all reasonable continuous controls have already been required

~~**Options:** TBD~~

As many communities throughout the nation face periods of exposure to unhealthy ozone and/or fine particle concentrations for years to come, despite the imposition of all reasonable controls on stationary, mobile and area sources, it may be appropriate to expand the use of seasonal and episodic control measures. Such measures can effectively supplement a program of continuous controls in preventing exceedances of the NAAQS. A variety of measures which could not be implemented on a continuous basis could potentially prove suitable and acceptable for seasonal or episodic use. Where areas have already been required to implement all feasible continuous controls as quickly as possible, seasonal and episodic measures can provide needed air quality improvements and speed up the ultimate date of attainment without undermining the role of continuous controls.

A number of seasonal and episodic control programs have been adopted in recent years. These include ~~legal~~ seasonal requirements to reduce NOx emissions from electric power plants in the ~~Eastern~~eastern U.S. (i.e., under the Ozone Transport Commission's NOx budget program and EPA's NOx SIP call), as well as requirements to reformulate gasoline and lower its vapor pressure on a seasonal basis. In addition, a number of communities have developed public information campaigns and voluntary programs designed to reduce emissions on specific days when high ozone concentrations are expected. Some communities, including Baltimore, Cincinnati, Dallas, Fort Worth, Sacramento, San Francisco and Washington, DC, have implemented broad-based ozone action programs that encourage an array of voluntary measures by individuals and businesses to reduce emissions. Other communities have explored or adopted specific mandatory measures ~~on~~ to reduce emissions, including restrictions on recreational vehicles, lawn and garden equipment, pesticide application, open burning, road paving, traffic marking, construction activities and the operation of waste incinerators.

To date, however, few efforts have been made to apply episodic controls to stationary sources. Such measures could provide a new set of cost-effective control opportunities capable of yielding sizable emission reductions ~~just~~precisely when they are most

needed. ~~For example, the Clean Air Partners Program in Northern Virginia is working toward an agreement with printing shops to run their lower emitting processes in the morning hours on predicted high ozone days to help avoid exceedances of the standard.~~ For example, the Clean Air Partners Program and Virginia DEQ are working with an industry trade association in Northern Virginia to develop a list of voluntary measures that printers could implement on predicted high ozone days. These measures include running their lower emitting processes in the morning hours, deferring short print runs, and enhancing various operational controls. Potential VOC reductions of up to 70% from ~~these sources~~printers are projected ~~during these~~ on critical ~~morning hours.~~days. Other large and small scale manufacturing operations may have similar ability to alter their production schedules ~~in order to defer their highest emitting activities until later in the day~~ and/or ~~another day.~~ operations on predicted high ozone days.

In addition, electric power producers and certain industrial sources may have considerable latitude to burn cleaner fuels or to increase the utilization of their cleanest units on high pollution days. ~~Electric power producers~~Even on the hottest days, power plants may operate well below capacity at night and during the early morning hours, allowing dispatchers to shift more production to their cleanest units at those times. In addition, power plant operators may be able to employ unit-specific optimization techniques to maximize emission reductions on high pollution days. They may also be able to ~~reduce emissions~~achieve reductions by importing electricity at key times from cleaner sources outside of the region.

In 1977 Congress considered and explicitly rejected the use of "intermittent" controls as part of a ~~regulatory strategy~~ SIP for achieving the NAAQS. Although the prohibition was applied broadly to all pollutants, it was designed primarily with SO2 in mind. It was aimed at avoiding reliance on temporary controls where more reliable continuous controls were presumed to be readily available~~, and at preventing~~. It was also intended to prevent the ~~mere~~ shifting of pollutants (e.g., by utilities with widely dispersed production capacity) from one place or time to another, without a corresponding decrease in overall pollution levels. Given the extent to which continuous controls have been deployed over the past 30 years, as well as the episodic nature of peak ozone and particulate concentrations, and the considerable strides that have been made in air quality forecasting, the concerns expressed by Congress in 1977 no longer appear to be germane.

EPA has concluded that the Clean Air Act does not restrict SIP approval (or ~~SIP~~ credit) for non-stationary source episodic reduction measures that apply to consumer actions or the use of consumer products or services, since these controls may represent the only feasible type of control. Nor does the CAA limit the use of seasonal controls that are implemented at predetermined periods of the year and do not vary with atmospheric or meteorological conditions, even if they apply to stationary sources. In addition, EPA has concluded that episodic transportation control measures and certain other mobile source measures may be approved under certain circumstances.

If the use of seasonal and episodic control measures is to be expanded – and more fully extended to stationary sources – a number of questions must be addressed, including:

- What role should these measures play in the air quality management system? Should they be mandatory or voluntary in nature? Should they be given credit in an air quality management plan?
- How can the results of such programs be measured?
- How far can EPA and states go in developing episodic control measures for stationary sources under existing legal authorities?
- How should the pollution season be set for seasonal measures? For episodic measures, how ~~best~~well can high pollution days be predicted and how should the measures called into effect?
- What additional measures might be candidates for either season or episodic implementation?

Conclusion

A number of air quality control measures could be identified that would be regarded as draconian if required for continuous implementation. Some of these could be practically implemented on a seasonal or episodic basis with relatively minor social and economic cost or disruption. In areas where all reasonable continuous controls have already been required, such measures can provide needed air quality improvements, without undermining the use of continuous controls.

Air Quality Management Subcommittee
Team 1 – Issue Group #2
Role of Monitoring and Modeling in Future Air Quality Management Planning.
March 15, 2006

Goal. The goal of this proposal is to identify the optimum future use of monitoring and modeling in an improved air quality management program that will facilitate integration across pollutant categories and environmental media and support achievement and maintenance of compliance with national ambient air quality standards within an accountability framework.

I. Background.

This paper will discuss the ambient air quality characterization needs of air quality managers and planners, the benefits of various planning tools, conclusions that the information suggests, and recommendations for consideration by Team 1 of the Air Quality Management Subcommittee and ultimately the entire subcommittee. The issue for consideration in this paper is how to enhance the complementary strengths of monitoring and modeling systems in air quality management.

The Air Quality Management Work Group Phase I report to the Clean Air Act Advisory Committee dated January 2005 included a recommendation to strengthen scientific and technical capacity. Recommendation 1.3 addressed uncertainties in emissions inventories and modeling by suggesting that EPA, in conjunction with various stakeholders, should quantify and take actions to reduce uncertainty in emissions and inventories and air quality modeling. The report recognized that monitoring data generally contains a higher level of certainty than emissions inventories and modeling data. The report recommended that a study be conducted to evaluate sources of uncertainty, identify needed data collection activities to reduce uncertainties, and to identify appropriate methods for incorporating remaining uncertainties in preparation of emissions inventories and running models.

Alternative air quality management approaches suggested in the Phase I report included establishing a more complete monitoring-based program, supplementing monitoring with modeling, and creating a multifaceted program using technology-based standards, modeling, and monitoring.

II. Discussion.

Air quality management and planning have always included a myriad of tasks including setting of ambient air quality standards, imposition of emission control requirements, modeling current and future situations, and monitoring ambient air quality. Emission control requirements have been dictated by such programs and

Prevention of Significant Deterioration of Air Quality and New Source Review. Yet, many sources have not been required to control their emissions at individual locations because of grandfathering, waiving of requirements, and emissions trading. The concept of technology-based standards complements air quality-based standards. One model of future air quality management suggests that planners might rely more heavily on technology-based standards in the future. Regardless of whether this becomes a reality, there will continue to be a need to supplement such mandated controls with assessments of air quality using some combination of monitoring and modeling.

Measured data from properly designed and calibrated monitoring equipment provides an accurate depiction of actual ambient conditions at the time the data is collected. Drawing conclusions from monitoring data must be carefully conducted however, given that influences on the data must be well understood. These influences include wind speed and direction, temperature, locations of pollution sources that may be impacting air quality at the monitoring site, and the level of operation, and thus emissions, that may be occurring at the time of monitoring. In addition, artifacts induced by sampling systems (e.g., volatization of particle nitrate and carbon) should be acknowledged and at times accounted for in subsequent assessments.

There are limitations to the availability of monitoring data from which to draw air quality management conclusions. Sample collection and analysis methodologies and devices may not be available for a particular pollutant of concern. Monitors may not be located in the exact locations required to gather reliable data necessary to make an accurate assessment of air quality at a desired location. It takes substantial time to procure equipment, design a monitoring strategy, install monitors, collect and analyze data, and provide it to decisionmakers. Staffing and funding resources constraints also complicate the preference that real-world monitoring data be available in all cases where it is needed. To overcome these deficiencies, monitoring networks may be expanded or reprogrammed, or modeling may be substituted for all or a portion of the desired monitoring.

Modeling is used in many cases to overcome the absence of actual monitoring data. Models are available to predict impacts of existing and proposed single and multiple emission points on local, regional, and national air quality. With development of reasonably accurate current and projected emissions inventories, certain models can predict future air quality including comparisons with existing and expected air quality standards. Agencies use modeling to make permitting decisions by predicting maximum concentrations of pollutants beyond existing and proposed emissions points. These provide information allowing agencies to assess exposures to receptors as well as consumption of air quality increments and compliance with air quality standards. From a regional and national perspective, models have been used to predict future air quality under various emission control scenarios. In many cases, models are evaluated using past meteorology and monitoring data. In all cases, there is a level of uncertainty that is not desired but is unavoidable. While

modeling capabilities have continued to be developed, the accuracy of models has improved, and the parameters and scenarios capable of being modeled have expanded, there remains concern about using modeling as the primary tool rather actual data.

Air quality planners need to know current levels of particular pollutants in the air, whether the air in a specific area meets air quality standards that apply to that area, the trend for a particular pollutant in a specific area, how growth in population and pollution sources may affect future air quality in a specific area, and which emission control strategies may be most beneficial in achieving and maintaining compliance with air quality standards in a specific area.

Local and state air pollution control agencies, with funding assistance from EPA, have created and continue to operate comprehensive monitoring networks. These networks are extremely expensive and require extensive staffing to support continued operations. Despite the efforts of each local and state agency to develop and operate monitoring networks capable of characterizing air quality within their jurisdictions, monitoring does not occur in all areas where questions may arise. Major measurement gaps include a fairly limited spatial and pollutant coverage of hazardous air pollutants (HAPs) and virtually no routine observations of dry gaseous and particulate mercury. In addition, there is obviously no way to monitor future air quality. For these reasons, modeling also has played a major role in historic and current air quality management.

On the positive side, the Level 2 sites to be implemented under the National Ambient Air Monitoring Strategy (NAAMS) explicitly address shortcomings on multiple pollutant measurements and designs servicing accountability and model evaluation. Recent and emerging air quality model developments are expanding towards integration of particles, ozone, HAPs and mercury in a one-atmosphere modeling approach. Emission Inventories are undergoing revisions to provide a consistent basis for integrated multiple pollutant systems.

While air quality models have the potential to provide virtually limitless resolution, the accuracy of modeled estimates varies markedly across applications thereby often confining the use of modeled results to prospective analyses of future year emissions scenarios. The rationale underlying the prospective use of models is that the nonlinear chemical interactions in atmospheric chemistry preclude the use of simple rollback projections on current day ambient observations and require the deterministic treatments available in modeling platforms. While the models provide the positive attributes of resolution and nonlinear capability, observations generally fall short in both those attributes yet offer significant value in truth or instilling confidence in a particular assessment. Consequently, an air quality assessment system should strive to utilize the complimentary strengths of observational and predictive platforms to yield substantial increases in air quality knowledge. Advancements in air quality assessments are based on our ability to improve air quality characterizations across spatial, temporal and compositional scales.

Recent development work in air quality forecasting, and related partnership activities with the Center for Disease and Control (CDC), NOAA and NASA are converging towards an increased reliance on a fused observation-modeling structure which builds on the complimentary strengths of each system offering potentially substantial enhancements in the spatial, temporal and compositional coverage of ambient air concentrations and deposition loadings. These approaches service a variety of user needs covering the health effects and exposure, air program management and ecosystem assessment communities suggesting the feasibility of advanced assessment approaches as a unifying vehicle to address the dominant themes of the NAS Report: multi-media, accountability and multiple pollutant integration.

III. Alternatives.

Consideration of alternatives through which future air quality assessments may be conducted allows for inspection of the role of air quality characterizations and the proper alignment between air quality management and characterization. Three options follow:

A. Monitoring-based Air Quality Management.

This alternative would manage air quality through a predominate reliance on monitoring to determine needed emission reductions. Air pollution control agencies would expand their air monitoring networks to provide more complete spatial and temporal data. Observation-based approaches include a variety of techniques that can be used to infer directional emission reductions (e.g., oxides of nitrogen and/or volatile organic compounds for ozone; oxides of nitrogen and/or ammonia for nitrate) even for nonlinear pollutants like ozone and secondary particulate matter. Source apportionment methods can provide some limited quantifiable reduction estimates, particularly for primary components of particulate matter. The major use of monitoring data would be in a larger accountability context where observations are used to iteratively assess progress of intended/implemented rules and allowing for mid-stream corrections. This alternative would require a strong commitment to monitoring. Monitoring data might be used as a trigger for action instead of using designations to start actions. Decisions would be required as to threshold levels that would trigger specific actions. For attainment areas, incentive-based programs might be proposed like the TRI or 33/50 programs. Public information might be used to reward good performers and to encourage high emitters to reduce their emissions.

1. Benefits.

a. Air quality management decisions would be made based on real-world data.

b. There would be less reliance on assumptions and inaccuracies.

c. Only the controls that are needed to meet the air quality goals would be required.

2. Areas of Concern.

a. Using a monitoring-based approach would require extensive monitoring networks that do not exist today. Thus, substantial expansion of monitoring networks would be required.

b. Costs necessary to operate expanded networks would be extensive and funding is limited.

c. Air quality managers would not be able to estimate future air quality with a high degree of certainty.

d. Actually needed controls might not be required in the absence of documented justification.

e. Achieving improvements in air quality would likely require longer time.

f. It may be difficult to convince regulatory agency management to approve expanded monitoring networks due to the likely political and technical concerns associated with deploying additional monitors.

B. Monitoring-based Air Quality Management Supplemented with Modeling.

This alternative would manage air quality through a predominate reliance on monitoring to determine needed emission reductions. However, the degrees of control and the universe of sources to be controlled might be determined through modeling. Reliance on modeling could be decreased but models would still be used to develop strategies as part of a weight-of-evidence approach and to corroborate the effectiveness of programs.

This alternative would also require a substantial commitment to monitoring and modeling. Monitored data is important to validate models and verify the level of success of air pollution control programs. Modeling would also be required, thus driving enhancement of existing models. Modeling would be used as a supplement to evaluate special concerns in urban areas and around monitors that have produced data of health/environmental concern. This approach is consistent with current guidance recommending weight-of-evidence approaches in the development of SIPs. The subtle difference is that models do not play a dominant role supplemented by weight-of-evidence observational insights but, rather, are utilized more as an equal partner in assessments. This approach is also well aligned with accountability concepts that stress more attention should

be focused on results over time rather than on the initial model derived strategy development. Ideally, this approach would take advantage of a fused modeling observation platform as discussed above.

For attainment areas, incentive-based programs might be proposed like the TRI or 33/50 programs. Public information might be used to reward good performers and to encourage high emitters to reduce their emissions.

1. Benefits.

    a. Air quality management decisions would be made based on real-world data, supplemented with modeled data where needed.

    b. There would be more reliance on assumptions and inaccuracies than in Alternative A. above, but less reliance than currently is the case. Air quality managers would be able to estimate future air quality with a relative degree of certainty.

    c. Controls that are needed to meet the air quality goals would be imposed only after analysis of the combination of monitoring and modeling data.

    d. This alternative would offer various entities (local, state, regional, and/or federal) the opportunity to participate in air quality management for their jurisdiction.

2. Areas of Concern.

    a. Using a blended monitoring/modeling approach might still require enhancement of existing monitoring networks.

    b. Costs necessary to operate expanded networks could be substantial in this era of limited funding.

    c. Air quality managers might still have problems estimate future air quality with a high degree of certainty in at least some cases.

    d. Actually needed controls might not be required in the absence of documented justification.

    e. Achieving improvements in air quality would likely require longer time than a program more heavily based on modeling alone.

    f. It may be difficult to convince regulatory agency management to approve expanded monitoring networks due to the likely political and technical concerns associated with deploying additional monitors.

g. Decisions would be necessary as to the levels of modeling required and who would do the modeling work – local, state, regional, or federal entities or combinations thereof.

C. Multi-faceted Air Quality Management Based on a Balance of Technology Standards, Monitoring, and Modeling.

In other parts of its work, the Air Quality Management Subcommittee is discussing an enhanced process of continuous improvement in emission controls and air quality, minimum emission control requirements for air pollution sources, and a multi-pollutant planning approach. The 2005 National Research Council report to the National Academy of Sciences recommended consolidated, multi-pollutant approaches to air quality management and suggested that the air program management community should integrate air toxics planning with criteria pollutant planning.

This alternative would manage air quality through a combined reliance on basic emission control expectations, more specific emission control requirements derived from an analysis of monitoring, and modeling data to resolve local and regional air quality issues.

The alternative presumes that there would be a minimum level of control for most if not all air pollution sources. These controls would address much of the background and transported pollution that impacts specific locales. The alternative would also require a substantial commitment to monitoring and modeling. The combination of source, ambient monitoring and air quality modeling would be used to verify the level of success of air pollution control programs and to drive potential mid-course emission strategy modifications. Modeling would be used as a supplement to evaluate special concerns in all nonattainment areas, in other geographical areas, and around monitors that have produced data of health/environmental concern. Integration of multiple pollutants, multiple media, and accountability are critical components of the alternative. A weight-of-evidence approach would be used to develop strategies and to evaluate the effectiveness of air quality management efforts. In concept, this approach attempts to optimize the desirable attributes of both technology air quality based approaches.

1. Benefits.

a. Air quality management decisions would be adequately supported through a combination of up-front emission reductions, monitoring data and modeling.

b. Minimum controls would be required on sources, creating emission reductions that would prove helpful to local areas and which would reduce transported pollution.

c. Reasonably comprehensive monitoring data would be available to identify problem areas, assess trends, and validate models.

d. Air quality managers would be able to estimate future air quality with a relative degree of certainty through use of various modeling tools.

2. Areas of Concern.

a. Establishment of minimum control standards and implementation would take considerable time and resources. Revisions of the Clean Air Act could be required.

b. This approach might still require enhancement of existing monitoring networks. Costs necessary to operate expanded networks could be substantial in this era of limited funding.

c. Air quality managers would continue to rely somewhat significantly on the assumptions and estimations of models. Decisions would be necessary as to the levels of modeling required and who would do the modeling work – local, state, regional, or federal entities or combinations thereof.

IV. Conclusions.

A high degree of knowledge and technical tools will continue to be essential components of future air quality management. No single tool can deliver the breadth of information that today's air quality managers require. Imposing new emission control requirements faces uncertain outcomes. Monitoring is expensive. Modeling is not a pure science. Yet the need for continuing improvements in air quality dictates an aggressive, blended program of regulation, assessment, implementation, and measurements. Top-down emission control mandates are not politically popular but should be imposed where justified. Monitoring cannot be the solution to all information needs but it is a valuable component. Modeling inputs remain subject to assumptions and estimations and the models themselves cannot duplicate the real world; nevertheless, modeling must be a component of continuing efforts to improve air quality.

A combination of technology-based controls, monitoring, and modeling have produced the best results in the past and will likely do so in the future. This blended approach will continue to provide the greatest opportunity of success while minimizing staffing and financial resource demands.

V. Recommendations.

Alternative C. is the recommendation of Team 1, Issue Group 2. This alternative will provide the most comprehensive approach to future air quality management. Combining emission control standards, monitoring, and modeling will give air pollution control agencies the best tools to achieve and maintain desired air quality. Coupled with other likely recommendations coming out of the Air Quality Management Subcommittee such as multi-pollutant approaches, continuous improvement, and additional collaboration at the local level, this set of tools will provide the highest level of effectiveness for future air quality management.

Team 1, Group 2, Proposal #4

Topic: Multipollutant Planning Approach

Draft date: March ~~14~~ 23, 2006

Author: Amy Vasu

Goal: Use an integrated, multipollutant ("one atmosphere") planning approach to reduce emissions of air pollutants more effectively and efficiently, in order to protect human health and ecosystems.

Topics Addressed:

1. Source sector-based approach and pollutant-based approach
2. Areas that need special attention (e.g., major urban areas)
3. Reconciling timing (e.g., aligning the varying attainment dates)
4. Providing incentives (e.g., more time as a trade-off to better control strategy/technology)

Options:

A. Current AQM program – single pollutant SIPs and sector-based NESHAPs, with general support for multipollutant control strategy development, including consideration of co-benefits and disbenefits. (consistent with Scenario 1)
B. Air Quality Management Plan (AQMP) within the CAA framework – umbrella planning document that includes individual/integrated SIPs for criteria pollutants and possibly selected HAPs, as well as plans for addressing air toxics, ecosystem protection, and local environmental issues within a State. (consistent with Scenario 2)
C. AQMP as a comprehensive air quality management plan that addresses air pollutants in an integrated manner (would require CAA revisions), including attainment of NAAQS, sector-based reductions of HAPs and criteria pollutants, ecosystem protection, and local environmental issues within a State. (consistent with Scenario 3)

Background

The CAA currently takes a single pollutant approach for criteria pollutants (through the NAAQS) and a source sector-based approach to HAPs (through the NESHAPs). This approach can result in the selection of control strategies/technologies that cause disbenefits (i.e., increases in emissions of other pollutants). Though the current CAA has requirements that make a multipollutant planning approach difficult (e.g., varying attainment dates), a multipollutant approach to air quality management could offer many advantages. These may include: 1) reaching attainment in a more cost-effective, efficient way, while getting greater overall reductions of pollutants; 2) optimizing the mix of control measures for multiple pollutants, thus avoiding control measures that, while beneficial in reducing one pollutant, may result in increases in others; 3) making better use of limited Federal, State, local, and Tribal resources, and those of the regulated community, for improving air quality; and, 4) making it easier for

potentially affected sources to plan installation of controls and/or process changes, rather than having to install controls in a piece-meal fashion.

In January 2005, the Air Quality Management Work Group made recommendations to the CAAAC, all of which were accepted, including the recommendation that EPA and States, locals, and Tribes promote the consideration of multipollutant impacts and, where possible, select regulatory approaches that maximize benefits from controlling multiple pollutants. In response to this and related recommendations, EPA has several efforts underway to move toward a multipollutant planning approach. Sector-based efforts include analysis of the pulp and paper, cement, and petroleum sectors to target emission reductions that will provide the greatest benefits in the areas of risk reduction and reaching attainment of the NAAQS. In a separate effort that included EPA/OAQPS, EPA Region V, and Michigan DEQ, two steel mills and a coke battery in Detroit were assessed, and control technologies were identified that could yield multipollutant reductions (for PM2.5 and precursors and metal HAPs, in particular). These efforts have highlighted the potential for control technology selection that provides optimum reductions of pollutants and offers more cost effective strategies that avoid stranded costs associated with piecemeal investments in control equipment for individual pollutants.

EPA/OAQPS, in coordination with EPA Region V, Michigan DEQ, and EPA/OTAQ, has undertaken the "Detroit Pilot Study" as a test case for development of a multipollutant control strategy for an urban area. The study will be completed in Fall 2006. The findings of the study will be used for several purposes, including: 1) to identify possible control strategies for attaining the NAAQS in the Detroit area, while also reducing risks associated with HAPs; 2) to provide information for development of guidance for S/L/Ts on how to develop a multipollutant control strategy, and 3) to identify where additional/improved data and tools may be needed for developing a multipollutant control strategy.

Option A: Current AQM Program

Timeline: Could be implemented within a year.
Partners: EPA, RPOs, State and local agencies, Tribes, and other stakeholders
Costs: Could be implemented primarily through existing cost structures

Option A proposes to continue with the current AQM program. Under this option, a combined pollutant-based approach and sector-based approach is taken. Single pollutant SIPs are required for areas not attaining the NAAQS and source category-specific NESHAPs are required to reduce emissions of HAPs. A limitation of this approach is that, historically, decisions about control technologies/strategies have excluded consideration of multiple pollutants, resulting in less efficient and less effective control of pollutants in many cases. With the current AQM program, EPA is providing support for multipollutant control strategy development and consideration of co-benefits and/or disbenefits in several ways: 1) by sharing findings of the recent multipollutant assessments of selected sectors; 2) by performing a test case for development of a multipollutant control strategy for an urban area; 3) by developing and providing guidance; and, 4) by developing data and tools to support multipollutant control strategy development.

This approach is consistent with the current CAA framework and presents no apparent legal risks, though the problem with varying attainment dates still remains. Varying attainment dates make the option of developing and submitting an integrated SIP difficult. A State could address this by submitting an integrated/joint SIP by the earlier submittal date, though there would need to be incentives, and possibly technical assistance, to prompt this. At this time, limited or no regulatory or economic incentives are offered.

Areas that need special attention include major urban areas not expected to reach attainment of the NAAQS, and many of these areas that have co-occurring risks from HAP emissions and exposures.

Scenario I draft recommendations:

- ~~continue~~Continue current efforts to support multipollutant control strategy development (e.g., development of guidance, development of tools and data (per Team 2 recommendations))
- ~~continue~~Continue Detroit Pilot Study as multipollutant control strategy development
- Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts
- Determine approaches for attaining targeted emission reductions expeditiously and with greatest overall benefits

Option B: Air Quality Management Plan (AQMP) within the CAA Framework

Timeline: Could be implemented over the next several years.
Partners: EPA, RPOs, State and local agencies, Tribes, and other stakeholders.
Costs: Could be implemented primarily through existing cost structures.

Under Option B, an AQMP would act as an umbrella planning document that includes individual SIPs or an integrated SIP for criteria pollutants and possibly selected HAPs, as well as addressing plans for air toxics, ecosystem protection, and local environmental issues within a State. This would involve a combined pollutant-based and sector-based approach.

Ideally, as part of this AQMP, a State would develop an integrated implementation plan for criteria pollutants and selected HAPs, and include consideration of co-benefits and disbenefits in control strategy selection. A source sector-based approach would be used for selected source types identified as being a regional or national scale concern. Remaining sectors that contribute to air quality issues specific to a particular State or locality would also be identified in the AQMP.

Areas that need special attention include major urban areas that are not expected to attain the NAAQS by 2010 and future years, and other areas with air quality issues that are regional or local in scale.

Having an integrated SIP poses legal risks unless the earlier attainment date is met. This option raises the question of how to reconcile timing (e.g., align the varying attainment dates). Since an integrated, multipollutant SIP is not required by the CAA, incentives would need to be provided to prompt S/L/Ts to attain success with this approach of meeting earlier SIP submittal and NAAQS attainment dates. Alternatively, EPA could choose to grant an extension for submittal of an integrated SIP and/or for attainment of the NAAQS.

To pursue a multipollutant planning approach, S/L/Ts will need improved data and tools, some of which EPA is currently developing, including an integrated emissions inventory database, an integrated control technology and cost database, and modeling tools that allow local-scale modeling of all sources.

Scenario II draft recommendations:

- Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts
- Determine approaches for attaining targeted emission reductions expeditiously and with greatest overall benefits
- Transition to a multipollutant air quality planning approach, which would require:
  - reconciling timing for SIP due dates and NAAQS attainment dates (e.g., by granting an extension for submittal of an integrated SIP)
  - providing economic incentives (e.g., additional grants for diesel PM reductions, with a streamlined process)
  - providing other incentives (e.g., more time as a trade-off to better control strategy/technology selection)

- developing tools and data to support integrated, multipollutant SIPs ~~(per Team 2 recommendations)~~
- investing resources in additional test cases for selected nonattainment areas—
- assessing options for "permit streamlining" (see Team 2 paper)

Option C: AQMP as a Comprehensive Air Quality Management Plan

Timeline: Could be implemented in the next several years.
Partners: EPA, RPOs, State and local agencies, Tribes, and other stakeholders
Costs: Could be implemented primarily through existing cost structures.

Under Option C, an AQMP would be a comprehensive air quality management plan that would address criteria pollutants and HAPs, including attainment of NAAQS, sector-based reductions of HAPs and criteria pollutants, ecosystem protection, local issues, and environmental justice issues. For a true multipollutant approach, all issues that relate to air quality, including energy, climate change, transportation and land use (further addressed in Team 1, Group 3 paper) would need to be included in the AQMP. The end goal would be to create a plan that is multipollutant-based and which addresses all of the critical air pollution issues within a State, sets priorities, and provides an overall plan. The AQMP would then provide a basis for creating multi-state (regional) plans.

For this option, the AQMP replaces SIPs and creates a new, integrated framework for managing air quality that more effectively and efficiently uses a combination of pollutant-based and sector-based approaches to address significant air quality problems in an area. This option would require either legislative changes or a decision to take significant legal risks.

SIP due dates would need to be separated from NAAQS promulgation, so that the process could be transformed to an AQMP that includes an integrated, multipollutant plan for addressing critical air pollutant issues for an area. This would be best served by creating a standard period of planning of, for example, 8-10 years, with a mid-period adjustment, if needed. If "reasonable progress" is not being made or if conditions change, this would trigger an "on ramp" for reassessing the AQMP. Selected HAPs may be identified and reclassified as criteria pollutants. Multiple pollutants would be addressed in the NAAQS review and standard-setting process, and development of the NAAQS for related pollutants would occur in parallel. Implementation of the NAAQS for multiple pollutants would occur in parallel, as reflected in the AQMP, with attainment dates that are aligned.

A sector-based approach would be implemented for selected types of sources that have been identified as being an issue on a national scale and identify some of those that are specific to particular States or localities that would be better addressed at the State or local level.

Areas that need special attention include major urban areas that are not expected to attain the NAAQS by 2010 and future years, and other areas with air quality issues that are regional or local in scale.

To pursue a multipollutant planning approach, S/L/Ts will need improved data and tools, some of which EPA is currently developing, including an integrated emissions inventory database, an integrated control technology and cost database, and modeling tools that allow local-scale modeling of all sources.

Scenario III draft recommendations:

- Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts
- Determine approaches for attaining targeted emission reductions expeditiously and with greatest overall benefits
- Develop a framework for an AQMP and identify specific legislative changes to the CAA needed to support this approach, including:
  - Separating SIP due dates from NAAQS promulgation
  - Replacing SIPs with an AQMP that addresses all of the critical air pollution issues within a State (including, for example, those that impact human health, ecosystems, climate change), sets priorities, and provides an overall plan
  - ~~Changing standard period of~~ Considering setting a fixed period for air quality planning ~~(e.g., to 8-10 years)~~, with a mid-period adjustment, if needed (e.g., if not showing "reasonable progress")
  - ~~Changing the standard period for NAAQS review (e.g., from 5 years to 8 years)~~
  - ~~Developing the NAAQS for related pollutants in parallel~~
  - Structuring implementation of NAAQS to occur in parallel for multiple pollutants
  - Using the AQMP as a basis for creating multi-state air quality plans
- Assess the standard period for NAAQS review and options for review cycles that correlate with new/improved science and with the significance of the associated air quality issues (i.e., more frequent for some pollutants, less frequent for others)
- Assess the option of developing the NAAQS for related pollutants in parallel
- Provide economic incentives (e.g., additional grants for diesel PM reductions, with a streamlined process)
- Provide other incentives (e.g., more time as a trade-off to better control strategy/technology selection)
- Develop tools and data to support integrated SIPs (per Team 2 recommendations)
- Invest resources in:
  - ~~A~~ a test case for development of an AQMP as a comprehensive air quality management plan for a State
  - ~~Improved~~improved data and tools (e.g., integrated emissions inventory database, an integrated control technology and cost database, and local-scale modeling tools) for development of AQMPs

- Assess options for "permit streamlining" (see Team 2 paper)

AQM Team 1, Group 2
Local Air Quality Planning
March 15, 2006

Overarching Strategy: Scenario #2

Goal: Stimulate innovative and stakeholder driven local or tribal airshed planning to manage pollution growth to prevent chronic erosion of air quality leading to NAAQS violations, PSD increment violations or causing NAAQS violations in downwind communities.

Principles Addressed:

- Establish a new AQ SIP planning paradigm which captures the positive aspects of Early Action Compacts, yet applied to attainment areas;
- Integrate air quality into local or tribal government's normal business of land use, transportation and community development planning;
- Address today's AQ threats in locales where strong population growth and urban sprawl is stimulating high growth in minor, area or mobile air pollution sources;
- Fulfill the Congressional intent of the CAA in managing pollution growth in clean air areas (CAA Section 160);
- Re-cast the statewide SIP policy principles where states write plans for each discrete Air Quality Control Region (CAA Section107).

Desirable Attributes to Embrace:

- Leverage off of existing local or tribal government functions;
- Promote clean air as a community economic and health resource that is conserved and managed locally;
- Promote creative incentives shown to build local stakeholder buy-in;
- New "drivers" are necessary to force the AQ goals, yet drivers could be crafted as backstop provisions leaving room for results based innovations and stakeholder buy-in;
- Rely more on accountable changes via emission inventories, less on ambient monitoring, and less on modeling projections.

Pot Holes to Avoid:

- Avoid the current bureaucracy burden of non-attainment area SIPS.
- If traditional SIP credits are necessary drivers, then create easier paths for credits when using innovative cutting edge emission reductions relying more on post-plan field verification.

Options:

A. Local plans that construct a mosaic of airshed based state-wide or reservation-wide plan.

B. Stand- Alone Local Area plans for individual high growth areas where significant pollution growth is underway or expected.
C. Area of Influence plans for locales that significantly impact downwind communities.
D. Multi-state Airshed plans spanning broad geographic areas.

Background:

The primary drivers in the Clean Air Act are the SIP and associated conformity review for non-attainment areas, and the technology forcing provisions of NSR, NSPS, and MACT controls for stationary sources. Major sources have been successfully controlled and SIPs, while bureaucracy laden, have been successful in cleaning up many poor air quality areas.

Yet, neither the SIP nor NSR/ technology processes adequately prevent pollution growth in locales where population growth and urban sprawl results in chronic erosion of clean air due to pollution growth from mobile, area or minor sources.

During the past three decades, pollution technology improvements allowed America to experience strong economic and population growth while also dramatically improving air quality. Yet growth is outstripping the technology hedge especially in high growth areas of the west and south. A new planning paradigm is needed if states, local governments and reservations are going to succeed in preserving clean air while also promoting population growth and the vitality of their economies.

Local and state officials charged with resolving non-attainment area problems have been forced to reach beyond the traditional stationary and mobile sources controls for new techniques and stakeholder processes to achieve necessary emission reductions for NAAQS compliance. There are lessons to be learned from these innovative efforts which can be directly applied to support this new planning paradigm.

Early Action Compacts (EAC) is a recently applied tool which has demonstrated the power of establishing incentives to fix problems early. Giving Local areas the opportunity to make early commitments to a specific action plan has opened the door to innovations in stemming and reversing growing air pollution problems. EACs keep the emerging non-attainment area under a tight schedule and progress must be demonstrated. The key attributes of EACs that are most responsible for encouraging quick actions should be embraced in any new local planning paradigm.

Many local leaders and governing bodies have become more mature in how they value clean air and more knowledgeable about the direct detrimental health and economic impacts of poor air quality. The federal regional haze standard has forced the formation of inter-state, tribal and stakeholder partnerships that were not foreseeable a decade ago. Congress' 1977 vision for preventing significant deterioration of clean air areas has begun to mature in the demands of the American public whereby clean air is viewed as community resource.

This proposal is founded upon the principle that many critical decisions about community and small source growth is routinely occurring in local government forums. These forums or aggregations of these forums are the best place to integrate future air quality planning if we as a nation are to succeed in conserving clean air as a resource, avoid creating problems for down-wind communities, preventing erosion of clean air to health standards, or nullifying PSD growth increments that stymie or preclude future economic enterprises.

The options presented below examine some possible approaches to stimulate the local air quality planning function.

Option A: Local plans that construct a mosaic of airshed based statewide or reservation-wide plan.

Policy Concept: This model would key off of the concept in Section107 (a) of the Act whereby each state or tribe is obligated to prepare a state-wide or reservation-wide plan to manage air quality. The unique aspect would be that tribes or states would be the responsible backstop entity in charge of constructing a mosaic of local plans that tier up to an aggregate airshed plan and then further aggregate to address the entire geography of the state or reservation. The frequency of plan updates could be triggered by a number of different factors such as a certain percent growth of emissions, percent increase in population, frequency with existing planning cycles of comprehensive community plans or transportation improvement plans.

Regulatory changes would likely be necessary to re-define the SIP planning obligation for states and local / tribal governments. The regulations would need to establish the planning provisions with respect to when local governments are obligated to do this, what backstop obligations rest with the state agency, whether the planning duty relies upon an emissions inventory as its benchmark and subsequent growth thereafter or alternatively whether that starting benchmark is based upon ambient air measurements in the local area or airshed. The regulations would need to specify how it is to be integrated within existing community planning and decision making process and how it is to be designed to tier-up to an airshed plan or statewide plan.

Pros:

- Local and Tribal governments are the best crucibles for stakeholder driven breakthroughs that will link air pollution growth restraint with community population and economic growth promotion.
- Responsibility residing with State would provide some consistency across the breath of local plans; provide technical resources for local governments to draw upon;
- Geographic span ensures that all areas get reviewed periodically;

Cons:

- State oversight responsibly may stymie ownership, buy-in and creativity at local government level;
- Currently there is no regulatory driver to make local plans happen in attainment areas;
- Adds a planning burden upon each state, local government or tribe at a time when federal funds are diminishing.
- Even if well integrated with existing local government planning decisions, it will also add a burden to local governments and tribes.

Option B: Stand – Alone Local area plans for individual high growth areas where significant pollution growth is underway or expected.

Policy Concept: Of the four proposals this one would be the least burden upon local, state or tribal governments because it would only apply to a particular local government when certain pre-established growth triggers are exceeded. New regulatory requirements to mandate the local planning could perhaps be rooted in the authority of Sections 160 and 161 of the Act from the policy perspective that emission growth above pre-set quantities per given geographic area have a strong likelihood to compromise the PSD increments. This legal foundation would rely on the assumption that minor source baseline dates have already been triggered for most areas of the country or the new regulations could accomplish a similar result.

Rather than rely upon a growth in ambient concentrations above a given baseline concentration, as envisioned in PSD increments, it would be far more practical to base the planning trigger on net growth of emissions. There's simply not enough money and staff for ambient monitoring to use ambient growth values as the triggering criteria.

The state or EPA would need to become the oversight agency for making periodic reviews to determine when local planning is required for a given community/ tribal village or unincorporated area. For administrative purposes, it may be beneficial to develop certain indicators or rules of thumb that would be used as a first cut indicator of significant emission increases. The triggering criteria would need to address high growth in new greenfield areas (e.g. urban sprawl) as well as increasing emission rates in existing urbanized or commercial areas. The rules of thumb may be things such as: number of new housing starts within a given area, increase in population density, number of business licenses issued for a given geographic area, number of new road lane miles constructed etc..

Pros:

- Lowest burden upon local governments

- Only required where pollution growth is generally known to be increasing or spreading geographically coincident with population or minor source growth.
- Local government more likely to embrace if it is evident that air pollution growth is real and could be an impediment to economic development, quality of life and/ or impair a visitor industry.

Cons:

- Currently no regulatory driver, except non-attainment classification or non-conformity determination for transportation improvements.
- Avoids dealing with the airshed problem where an upwind community is contributing to a downwind community's air quality problem unless the upwind community has a high pollution growth rate.
- Adds a planning burden on selected local governments, adds burden to state or EPA administration.

Option C: Area of Influence plans for locales that significantly impact downwind communities

Policy Concept: This option would to require local air quality planning when emissions from a community significantly degrades air quality in another community. The Clean Air Interstate Rule is specifically designed to address this problem where upwind sources contribute to a NAAQS problem. There appears to be adequate legal authority in Sections 107 and 126 to require the local planning within a given state provided the issue of concern is one community contributing to a NAAQS violation in a downwind community. However, the existing legal basis of the Act may be less certain if the goal is to prevent significant degradation in the downwind community. To achieve the policy goal of using local governments to manage chronic pollution growth, it is not sufficient to merely protect the NAAQS. Rather, the goal is preventing significant deterioration of air quality whether the cause is a community's own growth, impacts from an outside community or a combination of both. The PSD new source review program should adequately address upwind sources. However, the PSD regulations are not currently designed for managing emissions from a high growth community where minor source growth is the prominent threat.

Describing the upwind area of influence is often a complex task that ranges from the next community/ tribal village a couple miles away to hundreds of miles in an interstate airshed encompassing numerous states. In the west, regional haze contributions to the visibility in the Grand Canyon originate from source emissions transported from large segments of many states. Further, the area of influence is often a function of atmospheric chemistry when secondary pollutants are part of the problem.

Administratively, this option is far more complex than either A or B because it would seem to necessitate the use of modeling to get some indication of how

significant the impact from one community is upon another. Alternatively, monitoring data could be used to measure impacts. Yet again, ambient monitoring is very resource intensive and the task would be to measure net ambient growth which is a tough challenge for any monitoring network. It would be desirable for the implementing agency, EPA or the State, to establish a relatively simple process for determining when local planning is, or is not, required. This option does not appear to support easy or quick decision making as to when local planning would need to be done.

Pros:

- Local planning is only required when there is an evident cause and effect relationship – not all communities captured in the net;
- Only required where pollution growth is generally known to be increasing or spreading geographically coincident with population or minor source growth.
- May be the best option to achieve the dual protection of keeping clean air in the developing community while also assuring protection for downwind communities, while not casting the all encompassing net to demand local planning in every community.

Cons:

- Some communities may not support or buy-in especially if the protection is only for downwind communities and there is no local benefit perceived;
- Currently no regulatory driver, except non-attainment classification or non-conformity determination for transportation improvements.
- Adds a planning burden on selected local governments;
- Places a considerable work demand upon EPA or State government to determine where local planning is really needed; i.e. use of complex models

Option D: Multi-state Airshed plans spanning broad geographic areas.

Policy Concept: This option would embrace concepts in Option A and C while also premised on a finding that in many, if not most, regions of the country inter-state transport of pollution is a serious issue that must be addressed on a regional rather than state by state basis. While current regulations address inter-state transport issues for secondary particles, oxides of nitrogen and sulfur, acid rain, and haze, no existing regulatory structure exist to minimize or control chronic air pollution growth at the sub-NAAQS level. While public health via criteria air standards is the foremost goal of the Act, Congress has expressed its policy to prevent significant deterioration of clean air areas. The interstate regional approach that tiers up from local government and airshed planning may be the only method to achieve that very laudable goal of Section 160(3) of the Act.

Sections 107, 160, 161 and 126 of the Act would need close review to ascertain if adequate authorities presently exist to require a broad based airshed and regional planning duty.

Under this concept, states would need to retain a significant role in guiding the outcomes of local plans. State would then be responsible for consistency when tiering up many local plans into airshed, state-wide and region-wide plans that maintain technical rigor and consistency where necessary. States would also need discretion with respect to frequency of demanding local plan updates considering changes in emissions / growth status at the community by community level.

Regional planning organizations that now exist primarily for regional haze would need to take on a broader mission.

Pros:

- Same as listed for Option A.
- This option among others is most capable of achieving Clean Air Act goal of preventing air quality deterioration in the long term.
- Stronger integration of air quality goals with every aspect of government from local communities / tribal villages and up.

Cons:

- High demand upon government at local, state and federal level
- Likely to over-regulate areas of the country where commercial, industrial or population growth is stagnant or low

RECOMMENDATIONS:

1) A largely missing element of the clean air framework of the country is air quality planning by local government / tribal village government. It is recommended that local governments be required to integrate air quality planning into their land use, roadway and community development plans in a structured way.
2) If we as a nation are to preserve the clean air still enjoyed in much of the country, we must prevent chronic and widespread air pollution growth from minor and mobile sources especially in high growth areas with a more robust and obligatory growth planning duty. It is recommended that EPA and States develop a tiered regulatory planning structure geographically building up from local /tribal communities, to airsheds, to state and possibly multi-state Air Quality Management Plans.
3) Because the tiered planning function could become a heavy burden, it is recommended that the new regulatory structure be: pilot tested in one or more locales; provide strong incentives and flexibility for creative solutions; apply high rigor and demand proven results in locales where air pollution growth is strong; yet, allow for off-ramps, lower rigor or longer planning cycles if locales do not exhibit NAAQS violations or chronic pollution growth.

BOUNDARIES
Issue Group 2, Team 1

Draft Date: March ~~15~~27, 2005

Author: Jeff Underhill

Goal: Improve and coordinate interstate planning and rulemaking to better reflect the science of air pollution formation and transport.

Topics Addressed:

1. Determine meaningful boundaries
2. Transform the SIP process
3. Deal with pollution transport

Options:

A. Status Quo – Nonattainment areas, State and RPO boundaries
B. Elimination of Boundaries
C. Regional Airsheds
D. Areas of Influence/Areas of Violation
E. Variable Boundaries – Based on Known Science

Background

The Clean Air Act is currently geared toward addressing air pollution at the local level, focusing mostly on acute impacts from specific pollution sources. Other provisions allow EPA to issue rulemaking to address pollution on regional and national scales, typically focusing on specific pollution sources (MACT, heavy-duty diesel, Tier 2, etc.), but sometimes also more general (NOx SIP call, CAIR, etc.). EPA's stated goal is to reduce pollution from these sources enough so that states and tribes can meet attainment by enacting a reasonable amount of local controls.

The Clean Air Act specified that the Ozone Transport Commission be created, consisting of 13 states and the District of Columbia in the Northeast with the worst-measured levels of ozone in order to create a formal forum for interstate planning purposes. Generally speaking, this exercise has been a success and regional ozone levels have dropped significantly. Outside the Northeast, most states have worked independently to develop their SIPs or have banded together on a piecemeal basis to address emissions.

As ambient air pollution standards become more protective, localized pollution controls have become more difficult to identify and more costly to implement. The OTAG process demonstrated that certain pollutants such as ozone defy state boundaries and that some states could not reach attainment without more regionally and nationally coordinated emission reductions. Thus the need for regional coordination has increased greatly for pollutants with longer atmospheric lifetimes (ozone, small particles, etc.) Section 126 petitions have been filed by states desperate to reduce upwind emissions.

Option A: Status Quo - Nonattainment areas, State and RPO Boundaries

Timeline: Could be implemented within 1-year.
Partners: EPA, RPOs (states and tribes), stakeholders
Costs: Could be implemented primarily through existing cost structures.

Perhaps the easiest option to implement and the most likely to lead to prolonged air pollution nonattainment and litigation. While successful for certain pollutants such as CO and SO_2, success has been more difficult to accomplish for more regionally persistent pollutants. This option continues to rely on whatever national and regional programs emerge from federal and regional rulemaking and leaves local authorities to do the rest.

While simple in concept, this option has only limited success in reducing transportable pollutants since often what is left behind is beyond the physical ability for local authorities to successfully address, or so expensive or unpalatable that local rulemaking fails. In many areas failing to attain certain air pollution standards, most of the simple and cost effective local control measures have already been implemented and rulemaking is held up because more cost effective pollution reductions may be found outside the local nonattainment area.

Success for Option A would likely require more national and sub-national scale pollution reduction regulations to be implemented by EPA or Congress in order to reduce pollution transport to levels that realistic levels of local emission controls can successfully achieve attainment. Success for this option is also dependent on better aligning regional and national emission control regulation implementation dates and phase-in schedules with attainment dates. In many cases the federal programs lag the attainment dates by several years. Clearly this results in the economic conflicts of the costs to phase in controls faster with the ongoing health impact costs. Since local authorities only have control over their own jurisdictions, legal recourse is required when air pollution transport from outside their boundaries is too great to remove the remainder with realistic local controls. As an alternative, EPA should work with local communities to determine what level of local emission reductions are realistically possible before determining how much incoming pollution is reasonable after federal programs are implemented. This determination should be done as part of the federal rule technical analysis, in partnership with local authorities, so that the resulting regulations are not fatally flawed prior to implementation.

It should be noted that there will be an increase reliance on the RPOs and funding to those programs should be revisited with that consideration.

Option B: Elimination of Boundaries

Timeline: Could be implemented in 1 to 2-years.
Partners: EPA, RPOs (states and tribes), stakeholders
Costs: Could be implemented primarily through existing cost structures.

Elimination of nonattainment area boundaries could result in the loss of existing nonattainment area specific controls. Some sort of no-backsliding provision would be required to prevent emissions growth from rebounding industrial opportunity in areas restrained by emissions offsets and other restrictive requirements. Emission sources may seek to level the economic playing field with traditional attainment areas. Since no-backsliding provisions would still require some variation of current nonattainment area boundaries, removal of boundaries may not prove to truly be a simplification of the boundary system.

Option B would rely heavily on highly effective and timely regional and national emission reduction regulations that would also be implemented locally. Local authorities would be free to designate their own control program implementation boundaries based on what is determined to be most politically and scientifically effective for them. While local authorities would be encouraged to seek partnerships with neighboring jurisdictions to gain needed out-of-area emission reductions, there is a strong risk that Option B would not be much more successful in developing such partnerships than the current nonattainment system has achieved.

Moving forward towards attainment of more protective and harder to attain standards will invariably lead toward the need of additional controls on a less than national/sub-national scale. Without nonattainment area boundaries or some other boundary that approximates some reasonable scientific boundary, state and or RPO boundaries may become the default for delineating the extent controls need to be implemented. Unless EPA acts to implement rules covering differing regions, there is a possibility of pitting states/tribes against states/tribes in an upwind/downwind debate and Section 126 petitions rather encouraging entities to work together.

Removing all boundaries runs the risk of legal battles over who is responsible for what nonattainment and who should fall under more restrictive programs. As a result there will be a fairly high likelihood of drawn-out timelines.

Option C: Regional Airsheds

Timeline: Could be implemented within 1 to 2 years.
Partners: EPA, RPOs (states and tribes), stakeholders
Costs: Could be implemented primarily through existing cost structures. Regional coordination and travel costs could increase.

The regional airshed concept is based on the scientific principle that topography, weather patterns, and pollution sources combine to create their own boundaries and that it is this boundary that needs to be managed in order to most effectively meet clean air goals. An example of airshed management is the Ozone Transport Region in the Northeast. Several states with a common problem, high ozone levels, were grouped together so that they can combine resources to meet a common goal. Combined, the states are charged with identifying air pollution reduction measures that can be implemented regionally, and thus lowering implementation costs and economic competitiveness between partner states. The concept has been an unprecedented success although when created it was not anticipated how great the inter-airshed transport would be. For regional airsheds to be effective, lesions should be learned from what works and what does not with the Ozone Transport Region. Scientifically correct airshed also need to be defined in other regions of the country so that those regions can benefit from the expanded coordination.

Regional Planning Organizations developed for regional haze planning were an attempt to develop a form of airshed management, but during the formation, certain states did not want to get clustered with certain other states and the end result of the RPO boundaries became an airshed/political boundary hybrid. In order to work, the airshed boundaries need to be developed based on the science, starting with regions demonstrating measured air pollution commonalities as well as common source types. Rather than creating a new set of planning organizations, the existing RPO structure could serve to bring the airsheds together with the requirements of seeking common solutions. Airsheds would seek to cover multiple pollutants whenever possible, but airsheds may ultimately need modifications to accommodate other pollutants.

It should be noted that there are no set or exact airsheds, as commensurate for watersheds. Instead, airsheds can only be estimated for individual air pollutants based on using techniques such as monitor correlation and/or trajectory analyses. Longer lived pollutants will have longer transport ranges and thus larger airsheds than pollutants with shorter atmospheric lifespans.

Airshed Planning Region Considerations

- ~~Recognize that~~Resist use of political boundaries when defining airsheds unless supported by science.
- Monitoring and major sources/source regions should be considered.
- Regional modeling and meteorological modeling should also be considered.
- Nonstandard forms of measurements such as aircraft, balloon, satellite, mountain-top, building/tower monitors could prove useful.
- While MSAs may be useful in identifying the urban extent of metropolitan emissions, the boundary is generally too small to be considered an airshed.
- Once an airshed is defined, efforts should be made to understand the science of what creates it, special topographical and meteorological issues, population health risk, and other environmental and socioeconomic impacts.
- Airshed Planning Regions could contain several nonattainment areas.

- Airshed Planning regions would not necessarily include entire states, nor would they necessarily be entirely contained within the existing RPOs.
- The existing RPOs may contain multiple Airshed Planning Regions
- Consider overlapping of airsheds to include upwind source areas that contribute to problem areas.
- States may opt into upwind airsheds.

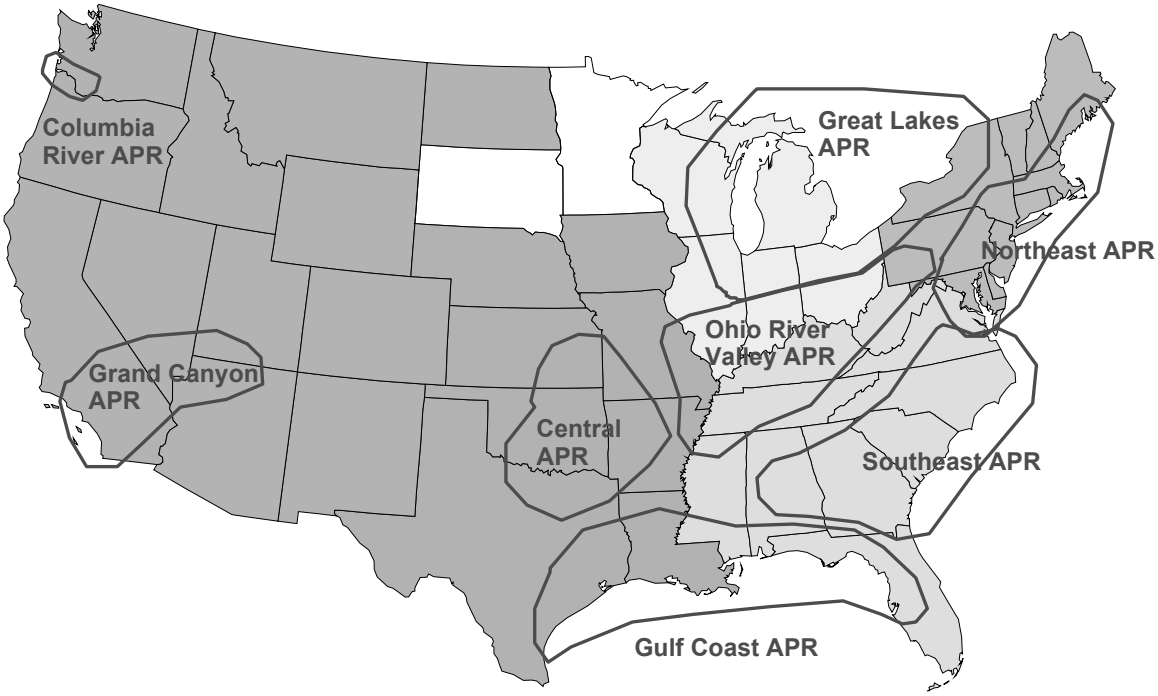
- Nonattainment areas ~~will~~could still represent areas with poor air quality and be the focus of state/tribal SIPs.

- Airshed Planning Regions look at the regional context of air pollution sources and how it affects nonattainment areas and other areas of poor air quality. Efforts should be focused on building successful state/tribe interrelations and SIPs.

- Regional Planning Organizations ~~will~~could continue to be the forum for bringing the regional states together for coordination and planning. Beyond the RPO's mandate for studying regional haze, they would now also be charged with coordinating the work of the airsheds within, or partially within their borders.

- National - EPA will still need to seek out pollution controls that are best implemented on a national or sub-national level and will provide resources as needed to study air pollution emissions, transport, and the coordination of the RPOs so that inter-RPO transport and airsheds that span multiple RPOs are properly considered.

Example of what regional Airsheds may look like:



Option D: Areas of Influence/Areas of Violation

Timeline: Could be implemented in 2 to 3 years.
Partners: EPA, RPOs (states and tribes), stakeholders
Costs: Additional financial resources would be needed to complete AOI/AOV analyses. Regional coordination and travel costs could increase.

Perhaps the most scientifically sound concept for reducing problematic air pollutants is to first define the areas that have higher than permitted levels, or areas of violation (AOV), and then somehow define with accuracy the areas of influence (AOI) that affect those AOVs. While defining AOV's is relatively straightforward through monitoring, determining culpable sources is difficult and varied from day to day. While technology has advanced far enough to allow analysis for what areas most influence a violating monitor, the process is tedious and results in a complicated network of AOIs for each AOV that overlap and cross-over each other. Further complicating the technique is the varying degrees that sources within an AOI actually affect the AOV and where should the boundary be drawn. For example, an analysis may determine that a 100 ton source 30 miles away from a violating monitor has a negligible influence, but a 250 ton source 10 miles beyond the smaller source has a significant impact. Where does one draw the boundary? Now what if there are two 100 ton sources that separately don't significantly impact the monitor, but combined, they do?

In order to be successful, a rigorous analysis would need to be undertaken for each monitor in violation, including the development of techniques that reasonably account for the logistics that create an AOV. For example, is there a single source causing the violation, or are there numerous sources that are minor individually, but combine to create the violation. Analyses will need to consider what source sector(s) is (are) most responsible for violations and what existing pollution control and associated timeline mean to remedying the violation.

What jurisdiction oversees the resulting AOIs creates an interesting problem. If the AOI lies entirely within a single state or tribe, that authority would logically be in charge. If the AOI covers more than one state/tribe, then states could voluntarily work together like in Options A and B above or use existing RPO venues. Since there are dozens of violating monitors in some RPOs, the RPO structure could get buried in logistics for tracking each associated AOI.

Perhaps the RPO/Airshed Planning Regions (APR ~~approaches~~) approach discussed above could be accepted as the AOI surrogate.

Option E: Variable Boundaries – Based on Known Science

Timeline: Could be implemented in 2 to 3 years.
Partners: EPA, RPOs (states and tribes), stakeholders
Costs: Additional financial resources would be needed to complete AOI/AOV analyses. Regional coordination and travel costs could increase.

One of the most pressing problems revolving around nonattainment boundary designations involves the lack of acknowledgement of pollution transport by the routine nonattainment area designation metric. Multiple forms of pollution transport and remaining significant local contribution to nonattainment should lead to a "hybrid" approach for boundaries different from the four options identified above.

This hybrid approach would build off of the existing 3 pronged planning approach (City based NAAs, RPOs and the federal government) but vary the boundaries to fit with what atmospheric science tells us is the appropriate control region for the regulatory initiative being considered.

As an example, for attainment of the Ozone and Fine Particle standards a mid-Atlantic state may need a large regional power plant control program (stretching west to the Mississippi River). But there will also be a need for an east of the Appalachians (smaller, but still a big regional boundary) program for area sources of NOx, VOC and SO_2 because of the low level night-time jet transport that affects much of the East Coast. There will also be a need for a local component to address mobile source emissions, VMT, and growth.

These are just examples, but each "control program" could be fit into the appropriate "boundary" based upon the science. A key part of the concept is to have an up front process - involving all parties - to develop, refine and agree upon the appropriate conceptual description of how air pollution gets formed in different areas of the country.

Recommendations:

While each proposal could be designed or modified in some way to work, some of the proposals are more likely to have quick success and with reduced risk of litigation. Take for example, the status quo option (option A). It has had some successes, but it was never really designed with highly transportable pollutants in mind. To make progress for those pollutants, a patchwork of local, regional, and national controls have been met with legal challenges and the use of Section 126 petitions has been questioned. While progress has been made, it has been slow and frequently challenged.

Elimination of boundaries (option B), using a one-size-fits-all and/or state-specific approaches faces the practical problems of not necessarily addressing the issue of downwind states disputing the level of pollution control in upwind states. Unless widespread controls are primarily applied to address transport up-front, delays in success are likely. Alternatively, applying all pollution controls on a national level doesn't necessarily adjust for topography and population density concerns and thus may not provide the most cost-effective approach.

There was a strong feeling from the subgroup that boundary recommendations should stem from the area of influence (AOI) / area of violation (AOV) concept originally proposed by FACA. It is an approach that is scientifically determined to succeed efficiently. Unfortunately, the AOI/AOV concept has never really gained traction because of the complexity in defining the AOI. It is a complicated concept in which boundaries can change under differing weather patterns. Instead this subgroup recommends the use of regional airsheds (option C) to roughly approximate the most critical areas of influence. Areas of violation can be applied simply as the areas not meeting ambient air standards, and build off of the emerging use of fused modeling-observation systems capable of providing contiguously consistent air quality surfaces to better define AOV (nonattainment areas).

In defining regional airsheds, every attempt should be made to clearly define the airsheds as simple, but scientifically sound regions, down to the county level. Politically convenient boundaries should only be used as a tie-breaker where scientific data doesn't show a preference. It should be further noted that local, regional, super-regional, and national pollution controls may still be most practical on a case-by-case basis and thus should be considered during the air quality planning process.
Where superior scientific data exists, variations to airshed boundaries can be made as described under Option E, variable boundaries – based on known science.

TEAM 1: Group 3
Proposed Coordination Strategies for Air Quality, Land Use, Energy, Transportation and Climate

[NOTE TO READER: This document represents the work product of Group 3 as of March 15, 2006. It contains nine proposals and numerous associated comments.

Group 3 has reached consensus on proposals 2 through 8. Group 3 is continuing to discuss proposals 1 and 9. Group 3 has scheduled a call for March 22, 2006 to discuss proposal 9.

Where a comment is noted as "resolved," Group 3 has reached consensus regarding how it wishes to address the comment. Group 3 recognizes that AQM subcommittee members (including Group 3 members who may not have participated in the consensus discussion) may have different views regarding the proposed resolution of a particular comment; Group 3's use of the word "resolved" is not intended to suggest that Group 3 is unwilling to consider such views when finalizing their draft proposals.

Finally, Group 3 has categorized proposals 1 through 8 into one or more of the three overarching scenarios established by the AQM Subcommittee co-chairs. While proposals 1 and 2 have been identified as "Bin 1" proposals to reflect group consensus, some Group 3 members believe there are opportunities to strengthen the proposals with Bin 3 treatment.]

INTRODUCTION

The Subcommittee on Air Quality Management ("AQM Subcommittee") is developing recommendations for long-term changes to the air quality management system based on the National Research Council's recommendations in its 2004 report entitled "*Air Quality Management in the United* States". Team 1 to the AQM Subcommittee is designing a proposed process for managing air quality and has divided its work into various issue areas. We were asked to address Issue 3. Specifically, *we were asked to propose ways in which the AQM framework of the future should coordinate with other programs such as land use, energy, transportation and climate*.

Land use, transportation and energy policies and programs are inextricably intertwined with air quality policies and programs. Specifically, land use, transportation and energy policies and programs can conflict with or frustrate attaining national air quality goals. Conversely, air quality policies and programs can conflict with or frustrate national transportation and energy goals. With these basic understandings in mind, the guiding principal for Issue 3 is that our nation's land use, transportation and energy policies and programs and our nation's air quality policies and programs must be aligned to serve consistent objectives.

During Group 3's discussions, there was considerable debate regarding the extent to which Group 3 should address climate. Some stakeholders believed that it was inappropriate for the AQM Subcommittee to address climate in any manner. Other stakeholders believed that it was essential for the AQM Subcommittee to address climate. After significant discussion, the Group 3 stakeholders agreed to a compromise position. Specifically, for purposes of the draft proposals set forth below, Group 3 agreed to pursue recommendations focused on information gathering and coordination and recommendations that recognized, without undermining, the various climate initiatives underway at state and local levels. Group 3 agreed that it would not entertain recommendations that mandate or advance climate change policy or proposals that give the United States Environmental Protection Agency ("EPA") a preemptive or preeminent role in climate change programs or policies.

This paper provides a summary of draft proposals we are currently discussing. These proposals reflect input from a variety of stakeholders, including from government, industry and environmental group representatives. During the next several weeks we will continue to refine and finalize the draft proposals.

PROPOSAL 1:

NOTE: TWO ALTERNATIVES ARE PRESENTED FOR CONSIDERATION AND FURTHER DISCUSSION

ALTERNATIVE A:

BIN RECOMMENDATION: 1

[FEDERAL AGENCIES SHOULD PREPARE AND MAKE AVAILABLE TO OIR, OMB AND THE PUBLIC STATEMENTS OF AIR QUALITY, ENERGY, TRANSPORTATION [AND GREENHOUSE GAS EMISSION] EFFECTS FOR RELEVANT AGENCY ACTIONS. ANY FINAL AQM DESIGN EPA ENDORSES OR ADOPTS SHOULD BE CONSIDERED A RELEVANT AGENCY ACTION FOR PURPOSES OF THIS REQUIREMENT.

Pursuant to Executive Orders 13211 of May 18, 2001 and 12866 of September 30, 1993, federal agencies are currently required to prepare a Statement of Energy Effects when undertaking certain "significant energy actions." "Significant energy actions" include actions that promulgate or are expected to lead to the promulgation of a final rule or regulation that is likely to have a significant adverse effect on the supply, distribution or use of energy or that is designated by OMB's Office of Information and Regulatory Affairs (OIRA) as a significant energy action. A Statement of Energy Effects must include, among other things, detailed information regarding any adverse effects the agency action will have on energy supply, distribution, or use (including a shortfall in supply, price increases and increased use of foreign supplies). Federal agencies must provide Statements of Energy Effects to OIR and OMB. OIRA uses the Statements of Energy Effects to ensure

that one federal agency's proposed actions do not conflict with another agency's policies or actions. Federal agencies must also publish their Statements of Energy Effects, or a summary thereof, in each Notice of Proposed Rulemaking and in any resulting Final Rule.

Proposal 1 is that federal agencies should also prepare Statements of Air Quality Effects, Statements of Transportation Effects [and Statements of Greenhouse Gas Emission Effects] for significant air quality, transportation, [and greenhouse gas emission] actions and should provide these Statements to OIR and OMB when they present the submission required by Executive Order 13211 of May 18, 2001. Federal agencies should also publish these Statements in each Notice of Proposed Rulemaking and in any resulting Final Rule.

To avoid redundancy, if a federal agency is required to prepare a substantially similar impacts analysis for its action pursuant to another statutory or regulatory requirement (e.g., the National Environmental Policy Act), the federal agency may submit that analysis to OIRA in lieu of preparing and submitting a separate Statement of Effects.

For purposes of this requirement, "significant air quality actions" shall mean actions that promulgate or are expected to lead to the promulgation of a final rule or regulation that is likely to have a significant adverse effect on air quality, "significant transportation actions" shall mean actions that promulgate or are expected to lead to the promulgation of a final rule or regulation that is likely to have a significant adverse effect on transportation, [and "significant greenhouse gas actions" shall mean actions that promulgate or are expected to lead to the promulgation of a final rule or regulation that is likely to have a significant adverse effect on greenhouse gas emissions]. Additionally, OIRA shall have the authority to designate an agency action as a significant action for purposes of one or more of these requirements.

EPA should consider three options for implementing the above recommendation: (1) pursue a Memorandum of Agreement between the Department of Transportation (DOT), Department of Energy (DOE) and others in which the agencies agree to conduct analyses and share results; (2) request an Executive Order from the President expanding the scope of EO 13211; and/or (3) voluntarily perform the above analyses and encourage other federal agencies to do the same.

Moreover, if EPA formally endorses or adopts a new AQM design as a result of AQM Subcommittee Team 1's recommendations, EPA should work with affected stakeholders to determine whether the AQM design would likely have a significant adverse effect on energy, air quality, transportation and/or [greenhouse gas emissions]. To the extent that the AQM design would likely have a significant adverse effect on one or more of these interests, EPA's endorsement or adoption of the new AQM design should constitute a significant agency action and EPA should work with outside resources, including DOE and DOT, to prepare a Statement of

Air Quality Effects, Statement of Energy Effects, Statement of Transportation Effects and/or [Statement of Greenhouse Gas Emission Effects] for the AQM design. EPA should subject these final Statements of Air Quality, Energy, Transportation, [and Greenhouse Gas Emission] Effects to public notice and comment.

The chief benefit of this proposal is that it provides information on the impacts of federal rulemakings and thereby informs members of the public, federal agencies, stakeholders and others of the impacts of those rulemakings as they review and comment on them.]

ALTERNATIVE B:

BIN RECOMMENDATION: 1

[EPA SHOULD WORK WITH AFFECTED STAKEHOLDERS TO PREPARE A STATEMENT OF ENERGY EFFECTS FOR ANY FINAL AQM DESIGN EPA ENDORSES OR ADOPTS AS A RESULT OF AQM SUBCOMMITTEE TEAM 1'S RECOMMENDATIONS IF EPA DETERMINES, AFTER CONSULTATION WITH AFFECTED STAKEHOLDERS, THAT THE AQM DESIGN WOULD LIKELY HAVE A SIGNIFICANT ADVERSE EFFECT ON ENERGY.

Pursuant to Executive Orders 13211 of May 18, 2001 and 12866 of September 30, 1993, federal agencies are currently required to prepare a Statement of Energy Effects when undertaking certain "significant energy actions." "Significant energy actions" include actions that promulgate or are expected to lead to the promulgation of a final rule or regulation that is likely to have a significant adverse effect on the supply, distribution or use of energy or that is designated by OIRA as a significant energy action. A Statement of Energy Effects must include, among other things, detailed information regarding any adverse effects the agency action will have on energy supply, distribution, or use (including a shortfall in supply, price increases and increased use of foreign supplies).

EPA should work with affected stakeholders to determine whether any AQM design that EPA endorses as a result of AQM Subcommittee Team 1's recommendations would likely have a significant adverse effect on energy. To the extent that the AQM design would likely have a significant adverse effect on energy, EPA's endorsement or adoption of the new AQM design should constitute a significant energy action and EPA should work with outside resources, including DOE, to prepare a Statement of Energy Effects for the proposed AQM design. EPA should subject the final Statements of Energy Effects to public review and comment.]

[Comments:

1. **NEPA: [RESOLVED FOR PROPONENTS OF ALTERNATIVE A]** Matt Kuryla and others asked the team to think about how this proposal relates to the NEPA process and what new or additional consideration of air quality effects is

appropriate for agency decisions. Subsequent research revealed that regulations that EPA adopts under the CAA are largely exempt from NEPA. Several DOT and DOE regulations are also exempt.

There was consensus among proponents of Alternative A that Federal agencies should be allowed to rely as much as feasible on existing analyses and mechanisms to satisfy this requirement and to avoid redundancy.

2. **Experience with Statements of Energy Effects: [RESOLVED]** Certain team members requested additional information regarding EPA's experience with Statements of Energy Effects. Chris Stoneman researched this issue for the group, and found that EPA has not triggered the Statement of Energy Effects requirement in many rulemakings. In fact, to our knowledge, EPA has only triggered the requirement three times to date. This suggests that the requirement has not been unduly burdensome.

3. **Burden and Scope: [RESOLVED FOR PROPONENTS OF ALTERNATIVE B]** Jeanette Clute and Jerry Roussel believe this proposal goes beyond Group 3's charge and represents an expansion into new requirements. Janet McCabe, Michael Bradley and others disagreed, suggesting this appeared to be right in line with Group 3's charge.

   The group discussed trying to find the connection between AQM and the additional impacts this proposal would address in order to develop a rationale for the proposal. Pat Cummins feels that the starting point is looking at AQ impacts (positive and negative) on transportation and energy and vice-a-versa and then you add GHG (which is really just another column on the spreadsheet).

   The Alliance of Automobile Manufacturers, Ford Motor Company, National Cotton Council, and Southern Company believe Alternative A goes beyond Group 3's charge. The executive orders already require entities to develop a statement of energy effects when taking significant energy effects. Proposal 1 (Alternative A) expands this existing requirement and requires all federal agencies (not limited to recommendations for EPA actions) to prepare statements of air quality effects, transportation effects and climate effects on any relevant agency action. Proposal 1 (Alternative A) includes a broad definition of significant agency action that includes, but is not limited to, EPA actions under AQM Sub Committee recommendations. Even if it were limited to AQM Sub Committee recommendations it would create a new regulatory requirement for EPA to undergo formal analyses of energy, transportation, and climate change and add requirements for EPA to include these analyses in air quality rulemaking actions and subject those analyses to public review and comment. This would add significant burden to EPA resource needs when promulgating air quality actions. EPA currently does not have jurisdiction or expertise to develop such analyses and is under resource constraints to handle those areas under its jurisdiction including criteria pollutants and air toxics. Furthermore all federal agencies are

under financial limitations to carry out their respective responsibilities. From a resource standpoint we are not in agreement with the added requirements and burden, which take focus off of EPA's core charter, air quality. Additionally, it is not the role of the AQM subgroup to recommend broad expansion of EPA's authority in these areas or require additional burden on other federal agencies. For all of the above reasons, the Alliance of Automobile Manufacturers, Ford Motor Company, National Cotton Council, and Southern Company have offered up Proposal 1 Alternative B for consideration.

Janet McCabe, Michael Bradley Michael Morford and others disagreed that Alternative A went beyond Group 3's charge, suggesting this the proposal appeared to be right in line with Group 3's charge. Lisa Gomez clarified that the last paragraph of Alternative A was intended to be very narrow, and to specifically relate to an AQM design that EPA might endorse or adopt as a result of Team 1's work. Group 3 has clarified this intent. Chris Stoneman pointed out that the existing requirement that agencies prepare Statements of Energy Effects (i.e., the requirement upon which this proposal was based) has only been triggered 3 times at EPA. Leah Weiss said that she has experience with state requirements along these lines that were first viewed to be extremely burdensome, but in practice were not so burdensome and turned out to be quite helpful. Michael Bradley and Lisa Gomez pointed out that Group 3's intent was not that ALL agency actions would require this analysis but, rather, than only a limited number of agency actions – those that are likely to have a significant adverse effect on air quality, transportation and climate – would trigger the requirement. Group 3 would has clarified this intent. Lisa Gomez's interpretation of the proposal is that "significant actions" means significant rules or actions that would produce rules (e.g., AQM design recommended by the CAAAC that EPA adopts).

Tony Delucia is sensitive to the workload issue posed by the proposal but feels that this looks like the right thing to do and would like to look towards some form of reasonable disclosure of effects.

Jerry Kotas is concerned that executive orders can come and go and would rather not rely exclusively on executive orders as the mechanism for requiring disclosure. Jerry Kotas would prefer to ask EPA to look at the issue comprehensively.

Steve Winkelman recommends that the scope of the proposal be expanded to cover EPA's approval of conformity budgets.

At the Dallas meeting, Pat Cummins reemphasizes that the proposal should not be restricted to EPA (the proposal should address all federal agencies) and said that more work needs to be done to address the linkages between agencies. Mark McLeod thinks Pat Cummins should write language to this effect for the preamble.

4. **Transportation and General Conformity: [RESOLVED]** Camille Mittelholtz feels that, if the proposal applies to more than actions that promulgate or are expected to lead to the promulgation of final rules or regulations, then it should explicitly address how it meshes with transportation and general conformity programs.

   At the Dallas meeting, the conformity issue came up. Camille Mittelholtz said that if Proposal 1 remains focused on regulations, she is not as concerned about its potential implications for conformity. Conformity deals with actual action, not regulation. Lisa Gomez said Proposal 1 currently applies solely to regulations and actions likely to lead to regulations.

   In Dallas the group also asked whether DOT or any other party has analyzed conformity's effectiveness. Camille Mittelholtz believes that analyses have been conducted, and agreed to look into this question.

   It was noted that the existing order, by virtue of addressing energy, may effectively address transportation.

5. **Additional information needed: [UNRESOLVED]** Need to (1) know whether the existing executive order has been triggered at Federal DOT, (2) obtain some compromise language to bridge group members' concerns and (3) determine whether the existing executive order covers transportation.

6. **Global Climate: [UNRESOLVED]** Carolyn Greene, Don Clay and others suggested that many of their concerns regarding this proposal's treatment of climate could be resolved if the references to "global climate" impacts were changed to "greenhouse gas emissions" impacts.

7. **Impacts Addressed: [UNRESOLVED]** Pat Cummins recommends that Proposal 1 should be expanded so that it covers actions that have "positive" impacts on energy, transportation and air quality. Group 3 had different views regarding whether this is necessary and appropriate. Greg Dana stated that regulations are typically proposed to affect the positive actions, and the preamble to such a regulation includes significant analysis of such positive impacts. Others felt that Pat Cummins was saying that a regulation adopted for one national interest (e.g., energy) should analyze the positive co-benefits the regulation will have on other national interests (e.g., air quality).

8. **Implementation.** [**RESOLVED]** Several Group members asked how Alternative A would be implemented. The Group agreed recommended three options: (1) MOA between DOT, DOE and others in which the agencies agree to conduct analyses and share results; (2) EO from the President expanding the scope of EO 13211; and/or (3) a requirement that only EPA perform the analyses voluntarily.

PROPOSAL 2: THE AQM PROCESS SHOULD SUPPORT TRANSPORTATION AND LAND USE SCENARIO PLANNING AT THE MULTI-JURISDICTIONAL, TRIBAL AND LOCAL LEVELS AND OTHER MEANS TO IDENTIFY EMISSIONS REDUCTION OPPORTUNITIES AND IMPROVE TRIBAL AND LOCAL ENGAGEMENT.

BIN RECOMMENDATION: 1

Multi-jurisdictional planning organizations[1] and tribal and local governments have primary control and approval authority over land use choices that significantly impact air pollution, energy use and greenhouse gas emissions. For example, multi-jurisdictional planning organizations and tribal and local governments have the power to determine or influence the way in which land is developed, how auto use and transportation patterns evolve, whether energy efficiency or demand side management techniques are required or implemented, and whether local funds are used to support mass transit. While the transportation conformity program is a valuable program for coordinating air quality and transportation planning processes, it does not go far enough in addressing coordination issues between transportation, land use and air quality. By virtue of their role in these multiple areas, multi-jurisdictional planning organizations and tribal and local governments have a unique opportunity to coordinate air quality, land use, energy, transportation and climate programs. For these and other reasons, Proposal 2 is that multi-jurisdictional planning organizations and tribal and local governments should be an integral part of the AQM process.

In order to achieve enhanced multi-jurisdictional planning organization and tribal and local government involvement in the AQM process and better coordination of AQM, land use, energy, transportation and climate programs, the AQM process should be modified so that multi-jurisdictional planning organizations and tribal and local government choices are better integrated with, and become a meaningful input into, Federal, State and Tribal AQM processes. In order to accomplish this objective:

- Multi-jurisdictional planning organizations and tribal and local governments should be provided time and resources to understand the impact that their land use, energy, and transportation decisions will have on air quality and greenhouse gas emissions. To that end, EPA (drawing on outside expertise) should develop a clearinghouse of resources and tools that will help multi-jurisdictional planning organizations and tribal and local governments achieve planning and development practices that benefit air quality. The clearinghouse of resources should include, without limitation, (a) modeling software that enables multi-jurisdictional planning organizations and tribal and local governments to model current and alternative growth patterns, energy trends and transportation investment priorities so that they can study how different future land use, energy and transportation scenarios would impact future air quality (e.g., PLACES software used by the Sacramento Area Council of Governments); (b)

[1] For purposes of Proposal 2, "multi-jurisdictional planning organizations" include, but are not limited to, multi-state organizations such as State DOTs, MPOs, RPOs, COGs, nonprofit planning organizations and independent system organizations.

EPA-approved and endorsed modeling software that enables multi-jurisdictional planning organizations and tribal and local governments to quantify the emission reductions associated with certain land use, energy and transportation technologies or approaches; (c) on-line tutorials and manuals for using modeling software; (d) model codes and ordinances that benefit air quality (e.g., model codes and ordinances that promote increased urban density, multiuse clustering, energy efficiency and public transportation); (e) guidebooks that identify land use, energy and transportation technologies or approaches that benefit air quality and establish certain minimum steps that multi-jurisdictional planning organizations and tribal and local governments must take to obtain State Implementation Plan (SIP) or Tribal Implementation Plan (TIP[1]) credit when pursuing such technologies and approaches; (f) model educational and citizen involvement practices; and (g) guidebooks that identify funding opportunities for innovative land use, energy and transportation approaches.

- Multi-jurisdictional planning organizations and tribal and local governments should be encouraged to conduct a visioning and scenario planning process in which the area in question decides where it wants to be in X years and adopts land use, transportation and energy policies and ordinances that further its vision. These efforts can be coordinated with and supported by the transportation planning process. This could produce an "integrated" strategy that addresses land use, energy and transportation in a manner that is directionally correct for air quality or explicitly tied to attainment. Moreover, as part of their visioning and scenario planning process, multi-jurisdictional planning organizations and tribal and local governments should be encouraged to work with state and/or tribal planning organizations to identify strategically-located local communities that are appropriate for new fuel and energy generation, storage, and transportation facilities and infrastructure requiring changes to the existing land and built environment.

- Multi-jurisdictional planning organizations and tribal and local governments that revise their land use laws consistent with EPA's model goals and ordinances, or that implement land use, energy or transportation technologies or approaches that benefit air quality, should receive appropriate credit in SIP or TIP planning. Their visioning and scenario planning process should become an input into the SIP or TIP as a measure in the baseline, a measure warranting credit, and/or a growth assumption. EPA has developed several useful guidelines for calculating SIP and TIP credit. For example, EPA has provided guidance on SIP credit for emission reductions from electric sector energy efficiency and renewable energy projects and plans to provide guidance on SIP credit for Emission Reductions from Highway and Off-Road Diesel Vehicles and Retrofits. EPA should continue developing specific guidelines for calculating SIP and TIP credit associated with other land use, energy and transportation technologies and approaches and should instruct EPA regional offices to follow all such guidelines for purposes of SIP and TIP planning and development.

[1] Throughout this document TIP refers to Tribal Implementation Plan and not Transportation Improvement Program.

[Comments:

1. **<u>Regional Planning Organizations vs. Metropolitan or Multi-jurisdictional Planning Organizations and Whether the Term Should Apply to the WRAP</u>: [RESOLVED]** Pat Cummins noted that people usually think of the WRAP when they hear "regional planning organizations" and asked whether it might be more appropriate to use the term "metropolitan" planning organizations. People on the call generally agreed that "metropolitan" or "multi-jurisdictional" planning organizations would be appropriate. However, Stephen Hartsfield expressed concern that "metropolitan" planning organizations could be too restrictive because it could be interpreted to exclude rural areas. Stephen Hartsfield much preferred the use of "multi-jurisdictional" planning organizations. He also suggested that we define the term "multi-jurisdictional" and said he believes it would be appropriate for it to be defined in a manner that would include the WRAP. Jeff Genzer also commented that "regional planning organizations" was too narrow. He said it should be expanded to cover multi-jurisdictional efforts and organizations including, without limitation, regional transmission organizations, independent system organizations and the multi-State GHG initiative in the Northeast. Stephen Hartsfield spoke with Pat Cummins regarding Cummins' suggestion that this proposal should exclude the WRAP. Hartsfield reported back that Cummins' rationale for excluding the WRAP was "due to the focus on transportation issues. Currently RPOs only have funding for regional haze issues." However, Hartsfield reports that RPOs will likely seek funding for an expanded scope with the next regional haze deadlines and that he knows WRAP members who are interested in working on climate change and mercury issues when they have funding to do so. Hartsfield also understands that EPA is interested in broadening RPO's work "because RPOs are an effective mechanism to get 'stakeholders' and governments involved." For the above reasons, Hartsfield believes the proposal should cover RPOs (including the WRAP).
2. **<u>Application to Tribal Governments</u>: [RESOLVED]** Stephen Hartsfield commented that tribal governments have a significant role in land use planning and this proposal should be expanded to cover them.
3. **<u>Should Proposal Cover Climate</u>? [RESOLVED]** Greg Dana would like to strike the words "and climate policies" from the end of the first paragraph because he believes that "while local areas are the best sources for land use and transportation changes, they can't impact climate change, which is a worldwide issue and requires changes on a worldwide scale." Michael Bradley felt the language should remain as currently written (i.e., it should cover climate) because he believe the language "reflects the reality that local and regional officials in many areas of the country are moving forward on climate related actions" for at least 3 reasons (first to begin achieving actual GHG emissions even though the impact on climate change will be extremely small, second to set examples of actions that can be taken to reduce GHG emissions, and third because these actions often deliver co-benefits). Carolyn Green and Don Clay expressed concern regarding the use of the term "climate policies," and suggested changing

this term to say "climate programs" would help alleviate their concerns. Greg Dana agreed with this change.

Steve Winkelman feels that, given our task assignment, it doesn't make any sense that we might strike energy or climate issues from any of the group's proposals. At the end of the proposal's 1st paragraph, if the concern is about the word local climate "policies" - they exist, see the US Mayor's effort (http://www.ci.seattle.wa.us/mayor/climate/) and ICLEI as key examples. Steve is certainly amenable to drop the use of "climate" in the 1st paragraph – it's much more important to him that it show up in issues that the scenario planning will assess.

Steve recommends that the 1st bullet of the 1st sentence of the proposal be revised to read: "Multi-jurisdictional planning organizations… should be provided time and resources to understand the impact that their land use and transportation decisions have on air quality, energy use and greenhouse gas emissions." Steve points out that local and regional land use and transportation infrastructure decisions have a direct impact on vehicle miles traveled, energy use and greenhouse gas (GHG) emissions. The Sacramento Blueprint plan, for example, will achieve a 15% reduction in air pollution and GHG emissions below what result in the business-as-usual transportation and land use scenario.

This point should be echoed in sub-points (a) and (b):

> "(a) modeling software that enables multi-jurisdictional planning organizations and tribal and local governments to model current and alternative growth patterns, energy trends and transportation investment priorities so that they can study how different future land use, energy and transportation scenarios would impact future air quality, greenhouse gas emission and energy use (e.g., PLACES software developed by the Sacramento Area Council of Governments);
> (b) EPA-approved and endorsed modeling software that enables multi-jurisdictional planning organizations and tribal and local governments to quantify the emission reductions and energy impacts associated with certain land use, energy and transportation technologies or approaches (e.g., emissions reductions associated with vehicle retrofit programs, wood stove change outs, etc.)."

4. **Should proposal make clear that it applies to criteria pollutants AND toxic pollutants? [RESOLVED]** Someone asked whether the proposal applies to both criteria and toxic pollutants and asked the group to consider clarifying its intent in this regard. Debbie Stackhouse noted that, if the proposal specifically references criteria pollutants and toxic pollutants, Group 3 should consider whether it should also apply to co-benefits, such as reductions in greenhouse gas emissions.
5. **Should the proposal include a communications strategy? [RESOLVED]** Janet McCabe asked how, once we have all these tools in place, EPA could encourage multi-jurisdictional and tribal and local governments to use the tools. McCabe suggested that a communication strategy may be necessary. Team 1

agreed that this may be an issue of overlap between Groups 3 and 4. Hartsfield (the Issue 4 sub-group lead) agreed to develop a communication strategy around this issue. Leah Weiss, Janet McCabe and Tom Chappel encouraged Team 1 and Team 2 to consider regulatory and non-regulatory incentives that would encourage local officials to adopt these approaches.

6. **Should the "toolbox" include software or guidelines to quantify emissions reductions associated with certain approaches and technologies?: [RESOLVED]** Larry Green suggested that it would be very helpful if EPA would develop approaches that states and local agencies could use to quantify emission reductions associated with certain land-use decisions (e.g., vehicle miles traveled, vehicle retrofit programs, wood stove changeouts, etc.).
7. **Scenario Planning in Transportation Improvement Program Process: [RESOLVED]** Steve Winkelman and Camille Mittelholtz are interested in alternative scenario planning in the Transportation Improvement Program process. Camille Mittelholtz proposed, and the group accepted, language on how the long range transportation planning process fits into this proposal. Steve Winkelman said that the new language also resolved his concern.
8. **Acknowledge Progress to Date: [RESOLVED]** Camille Mittelholtz notes that DOT and EPA have provided SIP credit guidance in certain areas and suggests that we acknowledge what is already on the books. Camille Mittelholtz proposed, and the group accepted, language on how the long range transportation planning process fits into this proposal.
9. **Regional Office Communication: [RESOLVED]** Several people noted that EPA regional offices are struggling with how to calculate SIP credit associated with certain land use, energy, and transportation practices and stressed that these offices need clear and mandatory guidance for calculating SIP credit.
10. **Transportation Planning and Conformity: [RESOLVED]** Camille Mittelholtz feels the proposal needs to better explain its relationship to transportation planning and transportation conformity. Does the group want to recommend changes to conformity?
11. **New language to discuss: [RESOLVED]** **"**The solution to air quality (including criteria pollutant and toxic air pollutant concerns), energy and climate change problems requires Federal, State, Tribal, regional and local strategies." Carolyn Green and other Team 1 members believe this sentence is controversial and unnecessary. There was general consensus to delete the sentence.
12. **Sprawl Reference: [RESOLVED]** Pat Cummins would like to remove the following sentence as redundant: "Moreover, to a significant degree, the issues that still need to be addressed to solve air quality problems – namely, urban sprawl – are regionally or locally based." There was general consensus to delete the sentence.

PROPOSAL 3: THE AQM PROCESS SHOULD INCLUDE INCENTIVES (INCLUDING, BUT NOT LIMITED TO, MORE MEANINGFUL FORMS OF CREDIT, REGULATORY INCENTIVES AND ECONOMIC INCENTIVES) FOR VOLUNTARY AND INNOVATIVE LAND USE, ENERGY, AND TRANSPORTATION TECHNOLOGIES OR APPROACHES.

BIN RECOMMENDATION: 1, 2 or 3 depending on the incentive (e.g., self certification incentives would be Bin 1, permit streamlining would be Bin 2, and tax credits would be Bin 3)

The AQM process should include incentives for voluntary and innovative land use, energy, and transportation technologies or approaches that benefit air quality. Innovative technologies and approaches that should be encouraged include, without limitation, low emission technologies, smart growth, energy efficiency measures, cogeneration, demand-side management and renewable resources. The AQM process should better integrate incentives that encourage these technologies and approaches into the NAAQS implementation process. Incentives could include, but are not limited to, more meaningful forms of SIP and TIP credit, regulatory incentives (such as expedited or streamlined permitting opportunities) and economic incentives (such as tax incentives, public benefits programs, and state and utility funding programs for energy efficiency projects), where appropriate and properly structured.

Appropriate and properly structured incentive programs such as expedited and streamlined permitting opportunities, the Texas TERP program, EPA's Performance Track Program, and innovative measures such as voluntary mobile emissions reduction programs ("VMEP") and projects funded by Congestion Mitigation and Air Quality (CMAQ) funds will, in the aggregate, make greater overall contributions to future SIPs and TIPs than those of the past, which relied more heavily on large point source reductions. Current SIP approval requirements have recently been made incrementally more flexible in crediting such measures, but they still require a ton-denominated precursor reduction applied to each such measure. The AQM process should establish more meaningful forms of credit for such measures. SIP and TIP crediting should be provided for energy efficiency and renewable energy programs. (Identification and development of tools to motivate voluntary and innovative technologies and approaches is referred to Team 2.)

[**Comments**:

1. **Permit streamlining associated with converting to alternative fuel sources:** **[RESOLVED]** John Seitz commented that "the current EPA and local permit programs are not 'energy friendly' in terms of making permit adjustments to burn alternative fuel sources. With the cost of energy going up and the emissions associated with more coal use – alternative fuel sources – bio fuels, waste corn etc. – should be promoted not discouraged by the permit process. If a source wants to use an alternative fuel mix … the permit amendment process takes too

long. There should be coordination between EPA and DOE to develop some criteria and performance requirements for different types of fuel mixes a coal fired boiler etc. might want to use. The requirement might be streamlined by requiring an initial combustion analysis of the emissions resulting from the proposed fuel mixture and a monitoring program to verify the results. If the initial analysis suggest that there would be a negative environmental impact, then a more detailed review would be required. On the other hand, if the initial analysis by the source suggested that a mixture would be OK, than they should be able to proceed quickly." Team 1 members participating in the discussion agreed with this suggestion and thought it fit well with Proposal 2. The Team also discussed that this would ultimately be a tool that Team 2 should consider and that it would be good to highlight this for Team 2. While Group 3 agreed with John Seitz' comment, they felt that his example was too detailed for the Group 3 paper. Therefore, they preferred to generically include "expedited or streamlined permitting opportunities" rather than John Seitz' fuel switching example. Group 3 will forward John Seitz' specific example to Team 2 for further development. Mark McLeod also noted that the various tools noted in Proposal 3 are only acceptable if they are appropriate to the situation and properly structured. Group 3 agreed, and added language to address this point.

2. **Are there any other specific tools we should reference? [RESOLVED]** Team 2 welcomes any specific tools we may suggest for their further investigation. Please see the list of tools that Team 2 is currently pursuing. Are there any additional tools that Group 3 should recommend? Tony DeLucia suggested that we may want to discuss specific smart growth ideas for New Orleans. He has provided the following specific proposed language for consideration: *"Recent events in New Orleans and the broader Gulf Coast region of the United States during the 2005 hurricane season highlighted the losses and sacrifices that may occur with catastrophic events due to ecological, environmental, and/or weather-induced destruction. To a certain degree terrorist events could also cause widespread, rather than localized destruction, as was the case with the September 11 attacks. During subsequent rebuilding efforts, as has been noted in the Gulf Coast and New Orleans, it may be prudent to pay attention to built environment features such as green building design and optimize land use density, transportation choice, and housing affordability as scenarios common in a "smart growth" agenda. The Environmental Protection Agency Office of Smart Growth can offer considerable guidance in such matters. Taken together with primary environmental restoration efforts, this planning may offer energy, economic, social, and health benefits, among others to the regions so afflicted as they undergo the painstaking process of renewal or rebirth."* Group 3 agreed that Tony DeLucia's comment was important, and agreed to add smart growth alternatives to the list of tools that Proposal 3 references. Group 3 felt that the proposed paragraph may be too detailed to include in Proposal 3, but requests further feedback from Tony DeLucia if he feels it is important to include the specific language as the Group is willing to reconsider this issue if Tony DeLucia is concerned or disagrees with the outcome..

3. **Energy Technologies and Approaches: [RESOLVED]** Jeff Genzer suggested that we should weave specific energy technologies and approaches into this proposal including, for example, IGCC, innovative carbon sequestrations technologies, energy efficiency, cogeneration, demand-side resources and renewable resources. Genzer also commented that the proposal should be expanded to include public benefits programs and state and utility programs for low-income and energy efficiency projects. Group 3 agreed with and accepted much of Jeff Genzer's proposed language, but felt certain of his proposed language was too detailed and specific for this proposal. Group 3 is willing to reconsider if Jeff Genzer is concerned with this outcome or if he wishes to propose a separate proposal that addresses his specific interests.

   Several Team 1 members believe the references to IGCC and carbon sequestration are too restrictive. These individuals suggested replacing the references with the term "low emission technologies." Someone also requested that Group 3 reference EPA's Performance Track program.

4. **DOT Language: [RESOLVED]** Camille Mittelholtz commented that CMAQ is not traditionally thought of as an incentive program. She will provide draft language addressing her concerns. She also noted that the statement talks about burdensome procedures and limited SIP credits, and pointed out that it was very important to continue to pursue incentives for the purchase of new clean equipment or retrofits. Camille Mittelholtz provided and the Group agreed to include suggested language addressing her concerns.

PROPOSAL 4: EPA SHOULD SEEK TO ESTABLISH AN INTER-AGENCY LIAISON GROUP WITH DOE, NRC, FERC, AND DOT TO EXPLORE ISSUES AND OPPORTUNITIES FOR COORDINATING ENERGY, TRANSPORTATION, GREENHOUSE GAS AND AIR QUALITY GOALS.

BIN RECOMMENDATION: 1

EPA should work with the other Federal agencies (e.g., DOE, NRC, FERC and DOT) to coordinate energy, transportation, greenhouse gas and air quality policies and programs with the goal of trying to better coordinate objectives across the agencies. To help initiate this effort, EPA should seek to establish an inter-agency liaison group with other Federal agencies that would explore issues and opportunities for coordinating these programs and goals. The Interagency Regulatory Liaison Group or "IRLG" from the late 1970s may serve as a good model. The IRLG brought together high level officials from EPA and other federal agencies to talk about policies and other common issues of concern. EPA should initiate the creation of a similar group to help coordinate and align the Federal agencies' goals and objectives. Detailed information regarding the IRLG is provided in Attachment A.

[**Comments**:

1. **Revamping of proposal: [RESOLVED]** In Dallas, Team 1 decided to refocus Proposal 4 toward liaison activities between Federal agencies. The above draft proposal is intended to reflect Team 1's recommended scope and direction. All comments associated with the prior version of Proposal 4, which was substantially different than the draft proposal set forth above, have been deleted.]

PROPOSAL 5: DEVELOP PROGRAMS THAT FOCUS ON REDUCING PUBLIC DEMAND FOR POLLUTING ACTIVITIES, ESPECIALLY NONESSENTIAL ACTIVITIES. SUCH PROGRAMS COULD INCLUDE INCENTIVE PROGRAMS FOR ENCOURAGE USE OF LOWER-POLLUTING ACTIVITIES, EDUCTION PROGRAMS, AND TAX AND USE RESTRICTIONS.

BIN RECOMMENDATION: 1, 2 or 3 depending on the incentive (e.g., education would be Bin 1, permit streamlining would be Bin 2, and tax credits would be Bin 3)

Most of our air quality management is directed at large scale sources of pollution, such as major industrial emitters. Although additional reductions from such sources are possible, greater reductions may be achieved by encouraging the public to reduce activities that produce pollution. EPA should develop an outreach strategy that includes, but is not limited to, education and labeling programs that help the public make environmentally beneficial choices and understand the impact their decisions have on air quality (e.g., California's 3-star recreational watercraft labeling program and DOT/EPA's recently-developed "Best Workplaces for Commuters" and "It all Adds Up to Cleaner Air" programs) as well as incentive programs that encourage certain behaviors. EPA should focus in particular on activities that are nonessential or which create other environmental harm in addition to air pollution. Although many impacts from such activities are felt most at the local level, efforts to influence public behavior at the local level are often unsuccessful—calling for leadership and hard decisions at the national level. EPA should evaluate options for discouraging such activities (e.g., education, taxes, fees imposed on federal lands, use restrictions) and encouraging less polluting activities (e.g., economic incentives, education, expedited or streamlined permitting opportunities). For example, energy demand might be reduced through programs that educate the public about energy efficient practices and by public benefits and utility programs that provide funding for energy efficiency and renewable energy projects. (Identification and development of tools for reducing demand for polluting activities is referred to Team 2.)

[Comments:

1. **Economic incentives, education and technological solutions vs. taxes and use restrictions: [RESOLVED]** Many Team 1 members expressed concern that this proposal will be very controversial. John Hornback suggested that it is important to focus on economic incentives rather than just looking at taxes and use restrictions. Leah Weiss stressed that it is important to include both incentives and hammers. John Hornback and others suggested that we should consider

removing the reference to use restrictions, as it will be highly controversial. Preference was also expressed for technological solutions over mandated rules. Janet McCabe expressed an interest in public education regarding activities such as idling and driving practices that impact air quality. Mark Morford offered up language to address this issue.

2. **Consumer products: [RESOLVED]** Janet McCabe and others asked why this proposal focuses on recreational vehicles, and asked whether other consumer products should be addressed. Lisa Gomez explained that the sub-group did discuss adding consumer products, but felt that doing so would stray beyond Issue 3. Lisa Gomez had forwarded the consumer product point on to Bob Wyman with a request that he focus on that issue in his Team 2 discussions. Team 1 was satisfied with this approach.
3. **Energy efficiency: [RESOLVED]** Jeff Genzer recommended that we expand the proposal to include public benefits programs and state and utility programs for low-income and energy efficiency projects. Group 3 agreed to include these concepts.
4. **DOT/EPA Programs: [RESOLVED]** Camille Mittelholtz commented that EPA and DOT have recently issued two education programs that focus on air quality implications of certain decisions – "Best Workplaces for Commuters" and "It All Adds Up To Cleaner Air."
5. **Specific tools: [RESOLVED]** Team 2 welcomes any specific tools we may suggest for their further investigation. Please see the list of tools that Team 2 is currently pursuing. Are there any additional tools that that Group 3 should recommend?
6. **Issue Sensitivity: [RESOLVED]** Several team members expressed a concern about the group wading into sensitive issues such as activity restrictions in nonattainment areas, public lands and taxes (except tax incentives). Mark Morford offered up language changes to address these concerns.
7. **Appropriateness of Title and Home for Proposal: [RESOLVED]** Steve Winkelman would like to revisit the proposal. He is not sure it fits with Group 3's charge. He expressed some concern whether the proposal belongs in Group 3, suggesting that it may fit better with Team 2's charge (i.e., with the "tools" group). Mark Morford agreed there is a tool aspect but stated that there also is a policy aspect.
8. **Renewable Technologies; [RESOLVED]** Jerry Kotas would like to add "renewable technologies" to the second to last sentence of the proposal that begins "Similarly … ." Group 3 agreed to this change.
9. **Effectiveness of public outreach: [RESOLVED]** Pat Cummins asked the question: do we really believe that educating the public about the impacts of recreational vehicles would impact their use? Gregg Cooke said that if you have a program similar to Energy Star, there is some percentage of people who will consider it. Bob Wyman says snowmobiles and jet skis already have this program and he would like to encourage use of these programs rather than prohibiting the vehicles altogether. California has the 3-star program for jet skis, for example. Lake Tahoe did a local program. Bob Wyman suggested that Group 3 should cite

the California labeling program as an example of how to change consumer practices in order to lower emissions.]

PROPOSAL 6: EPA SHOULD ANALYZE THE IMPACT CLIMATE CHANGE WILL HAVE ON FUTURE AIR QUALITY OBJECTIVES.

BIN RECOMMENDATION: 1

EPA should undertake an analysis of the impact climate change will have on future air quality objectives. As part of that analysis, EPA should assess the impacts of rising temperatures, the role of particles, the influence of forest fires, and the impacts on energy demand.

[Comments:

1. **Scope of GHG discussion: [RESOLVED]** With respect to GHG, Group 3 reached consensus that it is ok to talk about the following items: information, coordination as part of AQM and recognition of ongoing activities at DOE, in the States, etc. Group 3 agreed that this proposal is in line with those activities and they were generally comfortable with it.
2. **Information and Who Should Gather It: [RESOLVED]** With respect to information, Michael Bradley mentioned that he is drafting a paper that will suggest additional activities along the lines of this proposal (e.g., consistent inventories). He emphasized that having EPA develop a template for GHG emissions would be very useful as this is something EPA is pretty good at. Jeannette Clute doesn't think it is a good idea to recommend to EPA that it gather inventories – in her mind that is the first step leading to advocacy. Pat Cummins felt it is appropriate to strive for consistent inventories. Lynn Terry supports improving the GHG database but felt the group doesn't need to assign the task to EPA. Group 3 began to agree to expand the proposal to cover "all levels of government and the research community." However, Don Clay said he felt conflicted about the proposal's scope and to whom the information gathering/analysis work should be directed. He feels that Group 3 is charged with giving EPA advice and not advising states, locals, etc. Group 3 discussed this and the general consensus was that the Proposal should focus on requesting EPA action, rather than broader action. This determination primarily turned on two considerations: (1) many levels of government are not equipped to analyze climate change impacts, and it would be difficult to recommend that they do so before EPA has at least generated some information on the topic; and (2) EPA is the current audience for purposes of the AQM recommendations.]

PROPOSAL 7: ANALYZING EXISTING STATUORY LAWS TO DETERMINE THE EXTENT TO WHICH THEY CAN BE USED TO ENCOURAGE POLLUTION PREVENTION, ENERGY EFFICIENCY AND RENEWABLE ENERGY.

BIN RECOMMENDATION: 1 (However, the analysis that results from this proposal could require further action under Bins 1, 2 and/or 3)

There are several environmental and energy statutes that directly or indirectly address energy efficiency, cleaner energy, and renewable energy as a means of achieving air quality objectives under the Clean Air Act. These statutes are amenable to a number of permissible interpretations and the regulations implementing them are amenable to a number of permissible regulatory frameworks.

For example, The Clean Air Act Amendments of 1990 establish prevention as "a primary goal" of the Act (see Title 1, Part A, section 101 (a) (3) and Section 101 (c)). The Act also addresses concerns of multi-media transfer of pollutants.

The Pollution Prevention Act establishes as national policy:

…that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and that disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Similarly, the Energy Policy Act in Section 2108 (a) (titled Energy Efficient Environmental Program) states:

(a) PROGRAM DIRECTION- The Secretary, in consultation with the Administrator of the Environmental Protection Agency, is authorized to continue to carry out a 5-year program to improve the energy efficiency and cost effectiveness of pollution prevention technologies and processes, including source reduction and waste minimization technologies and processes. The purposes of this section shall be to--

> (1) apply a systems approach to minimizing adverse environmental effects of industrial production in the most cost effective and energy efficient manner; and
> (2) incorporate consideration of the entire materials and energy cycle with the goal of minimizing adverse environmental impacts.

A Clean Air strategy that takes full advantage of opportunities to use pollution prevention, energy efficiency and renewable energy measures may offer three advantages. First, such an approach could -- with a single investment – reduce multiple emissions and reduce and/or eliminate pollutants and emissions to other media, as well as emissions which are currently unregulated but which may be in the future. Second,

viewed from a systems perspective (as the Energy Policy Act dictates) pollution prevention, energy efficiency and renewable energy measures may be more cost-effective than command and control strategies. Third, pollution prevention, energy efficiency and renewable energy measures may help the United States accomplish important public policy goals outside the environmental and clean air arena, such as energy security, national security and homeland security.

Accordingly, EPA should examine the scope and extent of pollution prevention-based strategies permissible under the Clean Air Act; examine the cost-effectiveness of such strategies compared to command and control strategies; and identify opportunities for taking advantage of pollution prevention-based approaches that may exist in the current legal framework, as well as examining amendments or regulatory changes which would allow additional use of such pollution prevention strategies where they prove to be more effective from cost- and performance-based analyses.

In particular, where prevention-based strategies offer the opportunity to achieve national goals such as greater energy independence and energy security, and/or where they allow the nation to accomplish reductions in greenhouse gas emissions as an ancillary benefit that impose little or no net cost to the nation, such strategies and authorities -- existing and prospective -- should be identified and delineated.

[Comments:

1. **Should Proposal Include Interpretations of Statutes?: [RESOLVED]** Lisa Gomez is not comfortable with the statutory interpretations presented in the proposal because she believes that the language is not unambiguous. She would prefer that the proposal just state the statutory language without any interpretation. The language could then "speak for itself." Jerry Kotas seemed to be ok with this. Some questioned whether we really needed a discussion of what the law says. Jerry Kotas said maybe we could include some language from title 1 of CAA, and emphasize multimedia transfer, plus talk about policy goals. Then if there are different interpretations, there can be discussion. Jonathan Averback noted that the CAA definitely tees up the issue and fosters energy efficiency and renewable energy strategies. Jonathan Averback believes EPA may have already analyzed the extent to which current laws authorize energy efficiency and renewable energy strategies. Jerry Kotas said that we need to look at how and when the analyses were done because a lot has changed during the past few years. The market readiness and cost effectiveness of these measures has also improved significantly over the last several years.

   Consensus of group is the following for which Jerry Kotas will provide specific language:
   - There are several laws that cite pollution prevention as a goal, in some cases in specific reference to energy technologies (state statutory language verbatim without interpretation)

- No one has really analyzed those laws in depth from the standpoint of P2 and EE/RE
- Recommend EPA (consulting with DOT/DOE) explore statutes to find ways to encourage and incentivize EE/RE
- Goal is to figure out how to use statutes to get these measures in place
- Also look at multimedia impacts
- Focus on benefits of EE/RE, not the consequences of not having the measures in place

Jerry Kotas provided specific language (with some strengthening by John Fooks) to which the group agreed.

2. **Should Proposal Be Advocating Displacement of fossil fuel?: [RESOLVED]** Lisa Gomez asked Jerry Kotas for clarification on what is meant by the phrase "displace fossil fuel" as she would have some concern about a suggestion that fossil fuel should be replaced wholesale by alternative energy sources. Jerry Kotas clarified that he recognizes that we are clearly operating in a fossil fuel world and that he meant it as a suggestion that we strategically pursue more alternatives over time. He feels alternatives have been given lip service in the past but now Jerry Kotas would like to see more serious attention paid to them. Jerry Kotas suggests EPA do analysis and figure out ways in which energy efficiency and renewable energy strategies can be encouraged and fostered. Consensus seemed to exist that this is an area for serious investigation. Jerry Kotas agreed to removal of the sentence that discusses "displacing fossil fuel." The sentence also discusses the lower net costs of P2 energy technologies; in new language Jerry will provide he will retain this concept by emphasizing the expected benefits of these approaches which the EPA analysis may or may not bear out. Jerry Kotas provided specific language to which the group agreed.
3. **Should Proposal Mention Specific Renewables?: [RESOLVED]** Carolyn Green asked how biomass fits into the proposal. Jerry Kotas said that right now the focus is on solar, wind and geothermal sources. Sharon Kneiss was concerned about excluding biomass and said that it is considered renewable under the Environmental Policy Act. Brock Nicholson and Steven Hartsfield agreed that biomass should not be excluded. Jerry Kotas replied that he didn't intend to exclude it, but in terms of air emissions, the easiest place to start might be with other renewable sources. Lynn Terry noted that in California there's a huge issue with biomass in terms of old facilities that are very dirty. California is hopeful for new technologies. Jerry Kotas said that there certainly are other resources like solar, wind, and geothermal that can be brought together and quantified in terms of air quality improvement, and put into the baseline for SIPs. Mark MacLeod suggested that we may not need to spell out which kinds of renewables to use, as the proposal does not seem to depend on that. Steve Winkleman emphasized the need to quantify impacts and benefits of biofuels. Consensus is to keep the discussion of renewables broad and not to mention specific technologies.
4. **What is the product this proposal calls for?: [RESOLVED]** Brock Nicholson asked Jerry Kotas to clarify what the proposal was meant to require. Nicholson suggested that looking at particular options might be more intriguing than simply requiring a study. Jerry Kotas replied that he only suggested the legal language as a

way to provide additional encouragement/rationale to look at clean energy approaches. He said the goal of the proposal is to get more energy measures implemented. He believes we need leadership, an ability to quantify impacts, and an analysis of more technologies. Brock Nicholson responded by asking whether the immediate end product would be a restatement of policy and rationale and asked Jerry Kotas whether he had other ideas of how to get these things implemented. For example, there's inconsistency on how guidance is being interpreted for purposes of obtaining SIP credit. Jerry Kotas suggested that the Group look at Proposal 8, which he believes addresses Nicholson's question. Jerry Kotas will also further clarify this issue with additional language. John Fooks stated that it would be very difficult for EPA to conduct an analysis of the consequences of failing to do something and requested that the Group delete this language. Jerry Kotas provided specific language to which the group agreed.

PROPOSAL 8: EPA SHOULD WORK WITH STATE AIR AND ENERGY ORGANIZATIONS, TRIBAL GOVERNMENTS AND REGIONAL AIR QUALITY PLANNING ORGANIZATIONS TO OVERCOME POTENTIAL BARRIERS TO CLEAN ENERGY/AIR QUALITY INTEGRATION

BIN RECOMMENDATION: 1 (Bullets 1 through 4); 1, 2 or 3 (Bullet 5)

In August 2004, EPA issued new guidance to encourage clean energy/air quality integration – "Guidance on State Implementation Plan Credits for Emission Reduction Measures from Electric-sector Energy Efficiency and Renewable Energy Measures." To date, EPA only has approved one control measure under this guidance. The voluntary control measure, approved in an EPA Federal Register notice on May 12, 2005,3 involved the purchase of wind energy by a buying group led by Montgomery County, Maryland.

The 2004 EPA Guidance and the requirement for State Implementation Plan (SIP) revisions to meet the new 8-hour ozone standard and the fine particulate matter standard (PM 2.5) create a "window of opportunity" for clean energy/air quality integration. However, the limited precedents under the August 2004 guidance create an obstacle to aggressive adoption of energy efficiency and renewable energy measures by State, Tribal and local governments in developing their SIPs or Tribal Implementation Plans (TIPs). This obstacle results from several factors:

- Some States have indicated that they are unlikely to pursue energy efficiency and renewable control measures as part of their SIPs to meet the ozone and particulate matter standards because they perceive that their EPA Regional Offices will impose burdensome justification procedures and provide only limited SIP credit;

- Other States and regional planning organizations are actively considering control measures involving energy efficiency and renewable energy but they may be impeded by unforeseen interpretations of the Clean Air Act or EPA regulations and Guidance by Regional Offices;

- Many State air agencies do not realize that they need to adopt an EERE set-aside or other regulatory mechanism under their CAIR regulations in order to provide SIP credit for EERE measures for the period from 2009 forward;

- Information on the timing and amount of funding for DOE, EPA, and DOT funding of clean energy/air quality integration measures is not consolidated for easy access by State, Tribal and local governments; and

- State, Tribal and local governments are facing budgetary constraints that may limit their ability to adopt innovative approaches.

EPA should expedite actions to overcome these barriers to clean energy/air quality integration. EPA's Office of Air Quality, Planning and Standards should work with other relevant EPA Offices (EPA Regional Offices, the Climate Protection Partnerships Division, the Office of Policy, and the General Counsel's Office) and State, Tribal and local air planning organizations to:

- Communicate with State air agencies, local planning organizations, Tribal governments and related non-profit organizations (ECOS, STAPPA/ALAPCO, NASEO) to determine actual and perceived barriers to clean energy/air quality integration;

- Define a sample of EERE control measures currently under consideration by State, Tribal and local governments to meet the ozone and PM standards and anticipate and proactively work through the issues that will arise during the SIP review process. The Control Measures Workgroup of the Technical Advisory Committee of the Metropolitan Washington Air Quality Committee would be one good candidate for such proactive review since this Workgroup already has developed a large group of potential EERE measures;

- Provide outreach to EPA Regional, State officials and Tribal governments on the interface between the CAIR regulations and EERE measures in SIPs/TIPs;

- Develop a timeline for funding solicitations by DOE, EPA, and DOT relating to clean energy/air quality, including likely eligibility, funding levels, and amount of awards and make this information available on the EPA Air Innovations web site. This suggestion was presented to EPA at the 2005 Air Innovations Conference, and EPA implementation would help overcome a major information barrier.

- Identify innovative financing strategies (e.g., State performance contracting laws) to assist State, Tribal and local governments in implementing clean energy/air quality integration measures.

[COMMENTS:

1. **Should Proposal Address Tribes?: [RESOLVED]** Stephen Hartsfield pointed out that Proposal 8 may not adequately address tribes, and said that tribes are interested in these issues. Jerry Kotas agreed that the proposal likely should address tribes, and Stephen Hartsfield offered to provide some suggested language changes to accomplish this. In addition, Stephen Hartsfield asked whether DOE has done any assessment of tribal energy issues, and noted that tribes will likely be developing power plants very soon. Jerry Kotas replied that there has been a DOE tribal initiative, but he does not know what analyses have been done. Jerry Kotas will look into this and get back to the group. Jerry Kotas provided specific language to address Stephen's concerns).

2. **Can Proposal 8 Be Expedited?: [RESOLVED]** Brock Nicholson pointed out that proposal 8 is important, and needs to be addressed quickly, particularly in light of the CAIR rule. One of the Team 1 co-chairs responded that Phase I of the NAS Report process attempted to get at some of the short-term concerns Nicholson was raising and said that it was important to include the longer-term issues in the Group 3 work product. Jerry Kotas recommended that the existing EPA/DOE forum dealing with air quality and energy issues to talk about the immediacy of the issues outlined in the proposal.

NEW PROPOSAL 9: TAKING CLIMATE CHANGE INTO ACCOUNT IN AIR QUALITY MANAGEMENT STRATEGIES

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BIN RECOMMENDATION: TBD

The earth, according to virtually all indicators, is warming. The implications for air quality are far from clear, but certainly warrant consideration. Warmer temperatures and air pollution experience a dynamic relationship, as each may exacerbate or mitigate the other. For instance, warmer temperatures cause greater ozone production, so a warming earth may lead to more ozone pollution in many areas. But the causality goes the other way as well, as air pollution may affect global warming. Carbon dioxide (CO_2), soot, and tropospheric ozone help to warm the globe, while sulfates resulting from sulfur dioxide emissions appear to cool it. Understanding the connections between global warming and air quality management is not easy, and there is great uncertainty, particularly in regard to localized effects. Nonetheless, the effect of climate change on air quality is far too important a concern to ignore.

Globally, the warmest ten years on record have all occurred since 1995. According to NASA, 2005 appears to tie 1998 as the warmest year on record.. 2005 also appears to be the warmest year ever recorded in the Northern Hemisphere.

In addition to this global trend, rising temperatures have also impacted localities throughout the U.S. Uncertainties abound, and whether or not rising temperatures in any

particular place are related to global warming is far from certain. However, the fact remains that many U.S. cities and states have experienced extended periods of record heat and other climatic extremes in the past few years – a sign that may implicate global warming. To give a small sampling of the extreme weather that localities are facing: in 1998, a heat wave broke or tied 700 daily-high temperature records from the Rockies to the East Coast. In 1999, New York City experienced its warmest and driest July on record, with temperatures climbing above 95°F for 11 days – the most ever in a single month. In the summer of 2005, over 200 cities broke daily high temperature records, with Denver having its second warmest July since 1872 and equaling the all-time highest daily temperature record of 105°F, set in 1878. Las Vegas experienced five consecutive days with temperatures exceeding 115°F and tied its all-time record daily maximum temperature of 117°F. Death Valley had seven consecutive days (July 14-20) with high temperatures equal to or above 125°F. Other examples of similar events have crept up across this country and the planet.

These rising temperatures are nearly certain to affect air quality and its management. As mentioned earlier, warmer temperatures are directly tied to higher ozone levels. In addition, warmer weather directly affects energy demand: as temperatures rise, so too does electricity use. More electricity use will lead to greater utilization of existing power plants, or (eventually) to more power plants. In turn, this will lead to more pollution of NO_x, SO_x, PM, VOC's, CO, Hg, and CO_2. (On the flip side, a warmer winter may lead to less energy demand. However, since most air quality problems (e.g., ozone) are more acute in the summer, the benefits of a warmer winter will not compensate for the costs of a warmer summer.)

Another possible—though not certain—impact of global warming is an increase in the frequency of wildfires, generally because of hotter and drier conditions or because of other consequences of climate change (for instance, climate change may cause greater seasonal variations in rainfall in certain locations. More rain may lead to more vegetative growth; if hotter and drier conditions prevail as the season progresses, the trees and plants may become a tinderbox and cause more extensive wildfires because of their greater density. In fact, some experts believe that the recent fires in Oklahoma and Texas were caused by the coupling of intense spring rain with arid fall conditions.) Preliminary estimates from 2005 wildfire data suggest that this year will break the record set in 2000 for acreage burned, with over 8.5 million acres consumed across the U.S. by early December. An increase in wildfires will have a direct impact on air quality, as fires emit various air pollutants, such as $PM_{2.5}$, SO_2, NO_x, and a host of hazardous air pollutants including benzene, toluene, and polycyclic organic matter.

So how does this all relate to air quality management? We need an air quality management system that attempts to anticipate the impact of rising temperatures on air quality. If rising temperatures lead to more ozone pollution, for instance, we need a way to mitigate the resulting increase in emissions.

Historically, air quality managers have erred on the side of caution: if there has been a range of possible scenarios, managers have planned with the more harmful scenarios in

mind so as to protect public health. In the same vein, if climate models predict a range of possible temperature increases, we should consider the impacts from the higher end of that range and plan accordingly.

Although the federal government is not promoting actions to reduce greenhouse gases, many cities and states have taken the lead. For instance, according to EPA, forty-one states and Puerto Rico have completed greenhouse gas inventories and 28 states and Puerto Rico have completed, or are working on, action plans that identify cost-effective options for reducing greenhouse gas emissions or enhancing greenhouse gas sequestration.

As of January 26, 2006, over 200 mayors from cities across the United States have signed on to the U.S. Mayors' Climate Protection Agreement. The agreement commits the cities to inventory their greenhouse gas emissions, set greenhouse gas emission reduction targets, and enact policies and programs to meet those targets.

California has established greenhouse gas emission standards for passenger vehicles which take affect with 2009 model year vehicles, a move that Connecticut, Maine, Massachusetts, New Jersey, New York, Rhode Island, Vermont and Washington have followed and Oregon is in the process of adopting.
. And recently, seven states from the Northeast formally signed a Memorandum of Understanding codifying the Regional Greenhouse Gas Initiative (RGGI). RGGI aims to reduce CO_2 emissions by establishing a cap-and-trade program within the region's power generation sector. California, Oregon, and Washington are currently considering a similar electric sector CO_2 control initiative.

But as cities and states proceed with climate change programs, it is not clear whether they are fully accounting for the impact that climate-related actions may have on air quality. (RGGI, for instance, while enacting a limit on CO_2 within the region, may stimulate greater power imports from outside the region. The increased power production in neighboring states may have significant implications for levels of NO_x, SO_x, and mercury *within* the RGGI region as well as outside it.)

Many cities and states are interested in integrating air quality planning with their climate change programs. To that end, in October 1999, STAPPA/ALAPCO authored *Reducing Greenhouse Gases and Air Pollution: A Menu of Harmonized Options* to help states and localities address both issues simultaneously. This is an important document to encourage states to think about these issues in an integrated manner. However, this document requires updating to maximize its effectiveness.

Throughout the 1990s, EPA assisted states in the greenhouse gas inventory process by providing technical assistance, funding, and guidance on how to perform inventories. However, this effort has declined over the last few years and has resulted in outdated state level greenhouse gas inventories, differences in quantification methodologies employed and the breadth of coverage across sectors.

In the long term, we need to align air quality management strategies with policies that will effectively address climate change with mandatory greenhouse gas reductions. Over

the next 10-15 years, air quality planners should anticipate the need to accommodate these reductions and plan accordingly. (Failing to do so will only put us farther behind in terms of air quality improvement and climate change abatement.)

In conclusion, the Air Quality Subcommittee needs to recognize the dynamic relationship between global warming and air quality planning, as highlighted in the NAS Report *Air Quality Management in the United States* (2004). The most effective way to move forward is to recommend that EPA undertake a comprehensive assessment of the implications of climate change on air quality planning so that air quality planners will be armed with the information they need to make informed decisions. In addition, EPA should continue its efforts working with states, local governments, and tribes to quantity the potential for greenhouse gas co-benefits and disbenefits of air pollution and toxic emission reduction measures as agreed to in Phase I. Also the EPA effort to assist states with greenhouse gas emission inventories should be renewed so that states have access to the necessary guidance and tools to develop annual inventories using comparable quantification methodologies.

Recommendation:

Part I. Greenhouse Gas Co-benefits and Disbenefits – EPA should assist States and localities in quantifying the potential for greenhouse gas co-benefits and disbenefits of emissions reduction measures primarily designed to address ozone, $PM_{2.5}$, regional haze and air toxics. (Phase I)

Part II. EPA should undertake a comprehensive assessment of the implications climate change will have on future air quality objectives. The assessment should include estimation of the potential increases in the average and high temperatures during ozone season and the impacts of such increases on ozone formation. The assessment should also include estimation of the impact of air quality on secondary effects of temperature increases, such as wildfires, heat island effect, increased electric use, and others. The assessment should include an estimation of the additional costs associated with potential mitigation measures.

Part III. EPA should renew its efforts to assist states in the development of annual greenhouse gas emission inventories. The Emission Inventory Improvement Program quantification guidance should be finalized and made available to states to promote comparability between state inventories. EPA should also provide additional technical assistance to States so they may effectively evaluate greenhouse gas reduction strategies in conjunction with the development of their air quality management plans.

[COMMENTS: None identified as yet.]

Team 2
Issue Papers

Team 2 Tool Descriptions Table of Contents

These papers should be considered DRAFTS. These drafts are meant to guide discussions of the AQM Subcommittee and do not represent decisions or opinions made by the EPA, the CAAAC, or the AQM Subcommittee.

Brief Description of Tool:
For this application Financial tools and Emissions Trading tools are approaches which use either an economic incentive or a market-based strategy to encourage people to reduce emissions of air pollutants in the most efficient manner.

Applicability:

· Financial tools and Emissions Trading tools have been used for years with varying degrees of success. This paper lists some of the tools currently considered viable with references, where appropriate, to further information about them as many have been the subjects of lengthy reports.

· Financial tools can be used with and without an underlying regulatory mandate to spur expenditures on emission reducing technologies and strategies.

Implementation Experience:

A. Financial Tools and Financial Demand-Side Strategies

- ***Tax strategies*** (e.g., deductions, credits, accelerated depreciation, etc.)- Taxes are an incentive to reduce emissions. Monies collected can be used to fund other reductions (see Clean Air Investment Funds).

- ***Loans***- *Region 6*

- ***Equity strategies***

- ***Clean air investment funds***- A CAIF is a State-run mechanism to assist sources that face high control costs. It can be incorporated into Federal or State implementation plans for meeting the ozone and PM standards. The principal purpose is cost relief. A CAIF can serve as a way to lower the cost of compliance for sources by allowing them to pay an annual amount per ton of emissions in lieu of installing control equipment. The fund can also serve as a vehicle to attract investment in program development and technology innovation to improve long-term air quality management. The central purpose that ties these two uses together is to provide States and localities an additional tool for seeking out and securing less costly emission reductions. (*EIP, Section 9)*

- ***Emission fees***- *EIP Section 8*

- ***Fees in lieu of offsets*** (Bob Wyman providing something here)

- ***Targeted rebates***- These have been used in many places and for many different purposes. The replacement of lawnmowers and gas cans with newer, lower emitting models is a popular strategy.

- ***Differential pricing***- "The term 'transportation pricing programs' encompasses a variety of different programs that have a common element: *they attempt to incorporate the costs of transportation decisions into a price that a consumer sees and pays directly." (emphasis in the original-- EPA's 9/97 guidance, "Opportunities to Improve Air Quality Through Transportation Pricing Projects*" *)*

B. Emissions Trading Tools—*In general, see EIP*

- ***Cap and trade***- *EIP Section 6&7 "Cap and trade is a policy approach to controlling large amounts of emissions from a group of sources at costs that are lower than if sources were regulated individually. The approach first sets an overall cap, or maximum amount of emissions per compliance period, that will achieve the desired environmental effects. Authorizations to emit in the form of emission allowances are then allocated to affected sources, and the total number of allowances cannot exceed the cap."*

  "Individual control requirements are not specified for sources. The only requirements are that sources completely and accurately measure and report all emissions and then turn in the same number of allowances as emissions at the end of the compliance period." (source, EPA's Clean Air Markets Division)

- ***Open market strategies***- *EIP Section 6&7, Open Market Trading Guidance.* "Discrete emission reduction (DER) means an emission reduction generated over a discrete period of time, and measured in weight (e.g., tons)."

- ***Bubbles*** *(e.g., by category of equipment, facility, industry, port or airport*)- *EPA's 12/86 Emissions Trading Policy Statement, 51 FR 43814 A system under which existing emissions sources can propose alternate means to comply with a set of emissions limitations; under the bubble concept, sources can control more than required at one emission point where control costs are relatively low in return for a comparable relaxation of controls at a second emission point where costs are higher.(from EPA's Terminology Reference System)*

- ***Plant-wide applicability limits*** The PAL regulations are at 40 CFR 52.21 (aa) (for delegated PSD programs); 40 CFR 51.166 (w) (for SIP approved PSD programs); and 40 CFR 51.165(f) (for non - attainment areas). The provisions are essentially the same in all 3 rules. The preamble discussion for the PAL rules (which would have a generic description) begins at page 80206 (FR, Vol.67 #251, Dec.31,2002).

We also conducted a pilot study of PALs at 6 facilities. That study is discussed in a supplemental analysis for the NSR reform regulations in Appendix A at :

http://epa.gov/nsr/documents/nsr-analysis.pdf

Here is an excerpt from the summary of the analysis:

The EPA expects that the adoption of PAL provisions will result in a net environmental benefit. Our experience to date is that the emissions caps found in PAL-type permits result in real emissions reductions, as well as other benefits. As part of an overall agency effort to promote more flexible air permits, the EPA has been working with sources, States, the public, and other affected parties to pioneer a number of flexible permits nationwide. We recently completed an evaluation of six of these flexible permits that have been in effect long enough for us to be able to examine their performance. This evaluation, entitled "Evaluation of the Implementation Experience with Innovative Air Permits" is included as Appendix A to this report.

- ***Mobile to stationary trading***- is covered in several sections of the EIP. Start with the general guidance on OMT programs in Chapter 7.5. Development of emission quantification protocols for mobile sources in OMT programs is Appendix 16.3. Appendix 16.4 has some examples of Voluntary mobile programs. Appendix 16.10 discusses conformity, which could be an issue with mobile sources. Also would want to look at 16.11 and 16.14.

- ***Interpollutant trading***- *see EIP Appendix 16.9*

- ***Risk-based trading***

- ***Reactivity-based trading***- *See EPA's proposed approval of Texas' "Highly Reactive VOC Emissions Cap and Trade Program for the Houston/Galveston/Brazoria Ozone Nonattainment Area" (70 FR 58138 (2005) (to be codified at 40 CFR 52))*

Outline for white paper on incentive grant programs to be issued by the Sub-Committee on Economic Incentives and Regulatory Innovations and Air Quality Management Sub-Committee as part of the Clean Air Act Advisory Committee

Economic Incentive Grant Programs: An effective method to reduce emissions from on-road and off-road diesel vehicles

I. Introduction

A. Overview of the challenges in reducing emissions from the Legacy Diesel Fleet

1. Acknowledge the work of the Clean Diesel and Retrofit Work Group
2. Outline the challenges posed in reducing emissions from the legacy diesel fleet as outlined in the draft report
3. Review of different types of mandates and incentives that are currently in use as introduction to state incentive grant programs to reduce diesel emissions

II. Analysis of State Economic Incentive Programs

A. Texas Emission Reduction Program ("TERP")

1. History of creation of TERP as a substitute to mandatory measures in DFW and Houston SIPS
2. Discussion of the passage of SB 5 by the Texas Legislature including:

    a. Diesel Grant Program
    b. Clean Vehicle Program
    c. Energy Efficiency Program

3. Failure of Funding of SB 5 and passage of HB 1365

    a. Discussion and outline of HB 1365

4. Analysis and discussion of TERP following HB 1365

a. Review of grant effectiveness
b. Analysis of impacts upon different diesel sectors
c. Analysis of SIP credit effectiveness

5. Review of most recent changes to TERP and review of program by ENVIRON

6. Recent projects of TERP for integration into 8-hour air quality plans

B. Carl Moyer Program

1. Follow outline of TERP analysis above

III. Overview of Federal incentive program: DERA

A. Follow outline of TERP analysis
B. Discussion of financing of state vs. federal program options
C. Discussion of potential SIP impacts across the US and integration into 8-hour SIP planning

IV. Conclusion

V. Appendices --- TERP and Carl Moyer analysis materials

"DRAFT" Information Programs, Reward Programs and Non-Financial Demand-Side Strategies
Michael Sheehan
February 27, 2006

Brief Description of Tool:

- Clearinghouses for Technology, Regulations, Incentives
- Labeling
- Performance Benchmarking
- Community "Green" Action Lists
- Surveys
- Frequent Flyer-type Programs
- Web Tools

Applicability:

- These tools can be used to disseminate and/or gather information on important air pollution initiatives and programs to and from other federal, state and local parties as well as the general public. They can be utilized to educate, promote and/or incentivize the use of technologies, products, and practices that have a positive impact on air quality.
- All of the tools listed above could be utilized to address emissions of any pollutant from any emissions category. As is the case with any program, greater results will be obtained from the largest source categories with the most readily obtainable reductions and the most immediately available pool of information to provide. As these categories reduce emissions, new categories and opportunities will arise. The use of these informational tools to gather data, inform the public and reward those that actively participate in the programs will need to continuously evolve to remain effective and to more accurately target newly emerging areas of concern.

Implementation Experience:

- **Clearinghouses for Technology, Regulations, Incentives -** EPA supports a number of Clearinghouses and maintains a list of these at: http://www.epa.gov/epahome/hotline.htm . Some of the more notable clearinghouses are:
    - Clearinghouse for Emission Inventories and Emission Factor's
        - http://www.epa.gov/ttn/chief
    - Pollution Prevention Information Clearinghouse
        - http://www.epa.gov/oppt/ppic/index.htm
    - Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate Clearinghouse
        - http://www.epa.gov/ttn/catc/rblc/htm/welcome.html
- **Labeling** - EPA and the Department of Energy support one of the more prominent labeling programs. The Energy Star program is helping individuals

protect the environment through the promotion of items that provide superior energy efficiency. Information on this program can be found at: http://www.energystar.gov/ . Another labeling program that EPA has experience with is the labeling of products containing ozone depleting substances. Information and guidance on this program can be found at: http://www.epa.gov/ozone/title6/labeling/labfact.html . Other programs have been initiated by state and local agencies. The South Coast Air Quality Management District has the "Clean Air Choice" car labeling program. This program is designed to help buyers easily identify Clean Air Choice vehicles. Information can be obtained at: www.cleanairchoices.org .

- **Performance Benchmarking -** Performance Benchmarking is used to highlight the characteristics of one or more entities in relation to others. This tool appears to be widely used by consulting groups to highlight, compare and promote the attributes of a targeted sector. Not a lot of information was available through web searches of this category, however, one example is:
    - NRDC's Benchmarking of Air Emission of the 100 largest power producers in the United States – 2002, available at: http://www.nrdc.org/air/pollution/benchmarking/default.asp
- **Community "Green" Action Lists -** EPA created a green communities program to help communities access the tools and information that would help them become more sustainable "Green Communities." Information on this program can be found at: http://www.epa.gov/greenkit/whoweare.htm
    - The Goals of the Green Communities Program are:
        - to promote innovative tools that encourage successful community-based environmental protection and sustainable community development.
        - to establish partnerships with other organizations and agencies to help build community capacity and knowledge in order to create more livable communities.
        - to provide technical assistance and training through the Assistance Kit, workshops, and the network of successful Green Communities throughout the country.
    - Other programs are:
        - Greenaction: http://greenaction.org
        - Harmony Foundation: http://www.harmonyfdn.ca/mission.html
        - Co-op America: http://www.coopamerica.org
- **Surveys -** A survey is a method of gathering information from a number of individuals (a "sample") in order to learn something about the larger population from which the sample has been drawn. Surveys can be conducted using different tools and may have a variety of purposes. EPA has experience in completing surveys and through its emissions inventory improvement program even has even documented how to conduct surveys for area source inventories. This documentation can be found at: http://www.epa.gov/ttn/chief/eiip/techreport/volume03/iii24.pdf
    - Pursuant to section 183(e) of the Clean Air Act, EPA conducted a comprehensive 4-year study of consumer and commercial products. A

major element of that study was an accounting of VOC emissions from the full range of consumer and commercial products subject to section 183(e). This included a survey of consumer product manufacturers. Information can be found at: http://www.epa.gov/ttn/atw/183e/gen/183epg.html

- The California Air Resources Board has also conduct consumer and commercial product surveys in support of initiatives to regulated consumer products and architectural and industrial maintenance coatings. CARB's homepage is: http://www.arb.ca.gov/homepage.htm

- **Frequent Flyer-Type Programs** – most information found under this category related to airlines or defaulted to financial incentives when linked to environmental programs.
- **Web Tools** - In the electronic age web tools have been and will continue to be a necessary part of all environmental initiatives. As noted under all of the tools above, web tools are well used by the environmental community.

New/Additional Implementation Options and Issues:

- As noted, EPA currently supports a number of tools for use by the environmental community. Given the number of information sources found it is difficult at this time to determine what if any new implementation options would be available at this time.
- One of the key issues is the ability of the prospective audience to find the right information given the numerous sources available as a result of a simple web search. In order to determine what sources have been most successful at achieving their stated air quality goals an effort should be made to assess existing programs to determine what can be learned for future initiative and what if any changes should be made. It should also be noted that electronic data sources are only as good as the resources and commitment behind them. These tools have been beneficial to the air quality management process and will continue to be in the future as long as they come with the commitments and resources necessary to maintain them.

Outline of Tool Attributes:

The tools highlighted in this paper are informational tools used by the environmental community. As such they do not necessarily result in measurable environmental benefits and disbenefits, nor do they have economic impacts or time constraints. They require resources for monitoring and maintainenance but I am not sure if anyone has ever assessed these tools for accountability purposes. These tools can be used by federal, state and local jurisdictions in the implementation of clean air programs and they would not require Clean Air Act amendments to be implemented. Based on the number of resources found during the information gathering for this process, these tools are easily replicable. If they achieve the desired affect, they will help to impact personal choice and could better the quality of life with continued air quality improvement. By changing personal habits through the use of these informational tools, there should be a

net improvement in energy efficiency which will begin to address emissions of greenhouse gases.

"Draft" Planning Tools
Michael Bradley
March 6, 2006

Brief Description of Tool:
For this application a "planning tool" is defined as a measure, process, regulation or ordinance which is designed to anticipate potential air quality problems or to mitigate an ongoing air quality problem.

Applicability:

- "Planning tools" have been used to address many different types of air quality issues including transportation sources, area sources, intermittent activities and metropolitan area wide concerns.
- An inherent attribute of planning tools is that they can be designed to address a specific anticipated air quality concern while taking into account the specific environmental, economic and political dynamics which affect the situation.
- The planning process has the ability to take into account recent public health impact information, respond to new information, take advantage of recent technological advancements and learn from other similar planning experiences.

Implementation Experience:
A limited number of recently developed air quality related planning "tools" are described below which illustrates the diversity of approaches which are being adopted: (additional examples are welcome)

- ***New York City Clean Construction Equipment Law***

In a preventive planning strategy, the New York City Council adopted legislation to limit particulate emissions from construction equipment and diesel generators (non-road equipment) used by or on behalf of city agencies in order to protect city residents' public health. The City Council passed Local Law 77, requiring diesel-powered nonroad vehicles owned or operated by the city or those used in public works contracts by private companies to employ best available technology(emission control retrofits) and to use fuel with a maximum sulfur content of 15 parts per million. New York City is one of the first major U.S. cities to protect public health by requiring cleaner diesel equipment in public works construction. The City Council passed the measure in response to the significant health risks posed by non-road vehicle pollution, which include decreased lung function, aggravated asthma, respiratory symptoms and premature death. In 2000, the city had over 26,000 asthma-related hospitalizations costing nearly $250 million.

- ***California Goods Movement***

Goods movement – by truck, boat, and plane – is now the dominant contributor to transportation emissions in California. Moreover, CARB estimates that current (2005) goods movement activities result in approximately 750 premature deaths per year. To address this problem, the California Environmental Protection Agency and

the Business, Transportation & Housing Agency are developing a Goods Movement Action Plan. The Phase 1 Action Plan, released in September 2005, highlighted the air pollution impacts of goods movement and the urgent need to mitigate localized health risks in affected communities. The Phase I Action plan established four specific goals for addressing this problem: reduce emissions to 2001 levels by 2010; continue reducing emissions until attainment of applicable standards is achieved; reduce diesel-related health risks 85% by 2020, and ensure sufficient localized risk reduction in each affected community.

- ***EPA Community Action for a Renewed Environment (CARE) Program***

U.S. EPA's Community Action for a Renewed Environment (CARE) program is a competitive grant initiative that offers an innovative way for communities to work at the local level to address the risks from multiple sources of toxics in their environment. Through CARE, various local organizations including non-profits, citizens, businesses, schools and federal, state, tribal, and local government agencies create collaborative partnerships that implement local solutions to reduce releases of and minimize exposure to toxic pollutants. The goals of CARE are to educate communities regarding their pollution risks, reduce exposure to toxics, and promote self-sustaining community-based partnerships to improve local environments.

- ***Massachusetts Bay Transit Authority Emissions Monitoring***

Since May 2004, the Massachusetts Bay Transit Authority (MBTA) has been using state-of-the-art remote sensing devices to measure exhaust from its fleet of nearly 1,000 buses, in an effort to rapidly identify high emitting buses. High emitting buses are immediately taken out of service and repaired, and often return to service within 24 hours. This preventive monitoring program is an innovative feature in the MBTA's work to ensure that bus operations throughout the Boston metropolitan area have minimal impact on air quality. Through this program, the MBTA has become the country's first metropolitan transit authority to develop an inspection and maintenance (I/M) program to reduce air pollution from its buses. The remote sensing inspection and maintenance program will become an integral part in the MBTA's efforts to reduce diesel bus emissions by 90 percent between 2004 and July 2007 by upgrading its fleet with new compressed natural gas and clean diesel buses.

- ***Portland Land-Use Planning***

Via land use planning and zoning requirements, Portland, Oregon continues to be a front-runner in controlling sprawl while promoting clean air. The city has pushed pedestrian and transit-oriented real estate development as a way to manage growth, reduce air pollution and vehicle miles traveled, and obtain maximum return on public investment in light rail. In the mid-1990's, Portland initiated a "2040 growth concept" to guide the region's transportation and land-use planning. The city has a long-established urban growth boundary and offers various programs to help developers build vibrant downtowns and centers and livable streets.

- ***California School Siting***

California has passed land use planning laws to limit school children's exposure to air toxics. For instance, in 2003, the legislature passed SB 352. SB 352 creates a new requirement that any school site located within 500 feet of a freeway or other busy traffic corridor be reviewed for potential health risks. The focus of this analysis is on potential acute, short-term exposure to criteria pollutants. While California law previously required schools to ensure that permitted facilities within 1/4 mile did not pose a public health risk, the new law further requires schools to ensure that non-permitted facilities also not pose a public health risk. Such sources include, but are not limited to, freeways, large agricultural operations, and rail yards. The law does not apply to existing schools, but the law is expected to have a large impact on future school siting decisions. The bill came in response to various California Air Resources Board studies showing that air pollution levels can be significantly higher within 500 feet of freeways or busy traffic corridors and then diminish rapidly. A downwind distance of 328 feet (100m) will reduce cancer risk by over 60 percent. If the physical downwind distance is increased to 984 feet (300m), the relative concentration is reduced over 80 percent.

New/Additional Implementation Options and Issues:

For planning tools the implementation options would be determined by the specific circumstances associated with the objectives being pursued by a specific planning tool. Implementation barriers will also vary depending on the specific planning tool being developed.

Outline of Tool Attributes:

These attributes will have to be assessed for each individual planning tool.

Permit Streamlining
Patty Strabbing
February 20, 2006

Brief Description of Tool:

Permit Streamlining is the crafting of permit conditions such that redundant and unnecessary requirements and constraints are avoided in favor of limits that ensure the necessary and required emissions performance, and the associated demonstration of compliance in a manner that is practically enforceable. Redundant and unnecessary limits can include:

- Overlapping emissions performance limits (and associated recordkeeping), where one limit is more stringent. A RACT limit that applies to a source with a BACT limit would be such an example. In such an instance, the less constraining provisions (i.e., RACT) can be eliminated while retaining the more stringent provisions (i.e., BACT) to demonstrate compliance with both requirements.
- Limits on individual units that can be combined into a single multi-unit limit on emissions.
- Limits on operational conditions (hours of operation, unit throughput) of sources that have practically enforceable emissions limits that make the operational limits unnecessary.
- Limits with various time intervals (hourly, daily, monthly, annual) when fewer intervals will address all substantive concerns.

Streamlining can also be used to pre-approve certain types of source changes in the context of both NSR and Title V, thereby eliminating delays and paperwork at a later time that will yield the same environmental outcome.

Applicability:

Streamlining can be applied in the creation of new source permits, the incorporation of old NSR permit conditions into Title V permits, and the renewal of Title V permits. The key benefit of permit streamlining is the elimination of administrative burdens on agency and source personnel where recordkeeping, reporting, and permit amendment processing have no discernable environmental benefits. The reduced burden in turn makes air compliance more efficient for all parties, it can free up agency staff for more valuable activities, and it allows source owners to make operational changes more quickly in instances where the permitting review yields no environmental benefits.

Implementation Experience:

Streamlining has been used to a limited extent at both the state and federal levels over the last ten years with good success. EPA approved streamlining of overlapping emissions limits, wherein one is more stringent than the other, in the context of a Title V white paper. PALs, XL permits and flexible permit initiatives have all included some degree of permit streamlining to avoid administrative burdens that have no discernable environmental benefits. Michigan is one example that has recently started a program to develop streamlined permits on a case by case basis.

New/Additional Implementation Options and Issues:

Streamlining of conditions, as a philosophy of regulation can be applied to any emissions regulations or rules, not just permitting. For example, NSPS, RACT, and MACT rules could all be created or revised to address and eliminate or streamline recordkeeping, reporting and emission limits that are unnecessarily constraining or burdensome.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits
When done carefully, permit streamlining should have no environmental disbenefit. The idea is to eliminate requirements that have no benefit. In some instances, streamlining may make it easier to reduce emissions further but the program should not carry with it a requirement that emissions be reduced further than otherwise expected.

b. Economic impacts
Very large economic benefits will occur: administrative costs for government and industry will be reduced, frivolous enforcement activities can be avoided, and process changes can be affected more quickly.

c. Time
Streamlining does require an upfront investment in the crafting of permit conditions but the return on that investment will exceed the time spent at the outset.

d. Ease of monitoring and accountability
Carefully crafted streamlined conditions will be easily monitored and reported. Streamlined conditions mean less monitoring, reporting and oversight of requirements that have no benefits. Agencies and source operators have found streamlined permits easier to enforce.

e. Jurisdictional attributes
Streamlining can be of greatest benefit to state and local agencies in terms of workload and paperwork,

f. Would tool/strategy require CAA amendment?
No.

g. Replicability
While most streamlining to date has been done on a case by case basis, there is significant commonality. Guidance could be developed that will provide replicablity.

h. Impacts on personal choice and quality of life
Positive impacts will occur for the agency personnel and the source owners. No impacts on community members are expected.

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
No direct effects, although streamlining can be an incentive to eliminate the use of incinerators where compliance can be achieved through pollution prevention.

AQM Strategy Paper on Retrofits

The primary focus of retrofits so far have been over the road heavy-duty trucks due to their long life and the multiple engine rebuilds these vehicles have during their useful life. These retrofits may be converting engines to an alternative fuel, putting additional controls on an existing engine or replacing the existing engine with a new, cleaner engine.[1]

Those efforts should continue and be expanded, where possible, using whatever funds are available at the Federal or State level.

- Other vehicles that might be considered for retrofit include:
- Airport vehicles (convert to cleaner fuels, retrofit, or replace with electric)
- Off road equipment (locomotives, construction equipment, marine vessels, forklifts, etc.)
- Stationary sources (back-up generators, agricultural irrigation pumps)

Below is a chart from the Carl Moyer program in CA on the tons of NOx and PM reduced and the NOx cost-effectiveness. While the absolute numbers would not apply to other states, the relative larger gains from certain sectors might be helpful in targeting certain sources.

NOx and PM_{10} Emission Reductions And Cost-Effectiveness (NOx)[a] (Years 1-4)			
Source Category/ Equipment Type	Total NOx Reduced (tons/year)	Total PM Reduced (tons/year)	NOx Weighted Average Cost-effectiveness
On-Road			
Line Haul	183	6.6	$4,500
Refuse Hauler	500	15.8	4,800
Transit Bus	503	32.5	2,300
School Bus	4	0.3	7,200
Other	143	5.7	4,400

[1] The Carl Moyer program funded about 4,950 cleaner engines. This includes over 2,080 alternative-fueled vehicles, especially transit buses and refuse trucks. The program has also replaced nearly 2,870 older diesel engines with new, cleaner diesel engines, primarily in marine vessels, off-road equipment and agricultural irrigation pumps.

Off-Road			
Agriculture	43	6.4	4,600
Construction	190	15.9	4,400
Other	62	6.1	4,400
Ag Pumps	1,910	92.2	2,500
Locomotives	44	5.0	2,600
Fork Lifts	162	0.0	3,600
Marine Vessels	907	48.9	1,800
Total NOx/PM	4651	235.4	

a. Based on projects funded or with grant commitments. Approximately $9 million of Year 4 remains to be committed.

Other Factors

The advent of low sulfur diesel fuel being available in 2006 will enable some of these retrofit technologies to function better in the exhaust stream.

There are number of issues related to diesel use and restrictions on use time, or location which also can serve to reduce emissions, but they are not addressed here in this retrofit paper.

Funding

If no source of Federal funding is available, these programs could be funded by the creative use of fees from exempting certain newer cars from the Inspection and Maintenance program in the state, as outlined in the document the Alliance forwarded to the committee (Gregg Cooke's financial incentives group).

Incentives for Self-Certification
Sharon Kneiss
January 20, 2006

Incentives for Self-Certification
Enforcement-related regulatory burdens such as reporting and inspection frequencies and penalty exposure should be further reduced for firms with superior compliance determination procedures.

Applicability:
Probably more applicable to major sources with complex emissions profiles than to smaller sources. However, it could be appropriate and beneficial for sources of any size.

Such a reform would encourage improved company compliance procedures, which is by far the best method of assuring compliance. It would also allow governments to use their scarce enforcement resources where they could provide the greatest environmental improvement.

Implementation Experience:
EPA's audit policy represents a highly successful and well established application of this approach to reducing both penalties and the number of routine inspections. EPA's Performance Track Program has taken a very few steps toward reducing reporting burdens, for covered sources only. See 69 Fed. Reg. 21737 (April 22, 2004).

New/Additional Implementation Options and Issues:

- Much more could be done to reduce routine reporting requirements for companies with superior compliance determination procedures.
- The government could accept the determination of qualified third party audit firms as proof of superior compliance procedures, analogous to the use of accounting firms to certify financial statements. That would relieve the government of the resource drain of company by company certification, and encourage the spread of improved compliance procedures.
- At present, violations detected by legally required monitoring are not eligible for the penalty reduction aspects of the audit policy. Reduction of such penalties could be allowed for companies with superior compliance determination procedures.
- The audit policy does not currently allow any reduction of the "economic benefit" aspect of penalties. Such a reduction could be allowed for companies with superior compliance determination procedures.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits
This tool would reduce emissions by improving compliance. (It would be inappropriate to require **additional** emissions reductions, as some have

suggested, before companies with superior compliance procedures could qualify for this relief.) This tool would also free enforcement resources for higher-priority uses, and encourage the development and spread of better compliance determination procedures.

b. Economic impacts
Beneficial. Firms would not adopt this approach unless they saw such benefits, and it would save government resources as well.

c. Time
Could be implemented relatively quickly

d. Ease of monitoring and accountability
No special problems.

e. Jurisdictional attributes
Could be implemented at any jurisdictional level. As always, a coordinated State-federal approach would be desirable.

f. Would tool/strategy require CAA amendment?
No.

g. Replicability
Highly replicable from jurisdiction to jurisdiction

h. Impacts on personal choice and quality of life
No adverse impacts.

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
None.

Source Specific Emission Limit Agreements
Sharon Kneiss
January 20, 2006

Source Specific Emission Limit Adjustments:

Sources should be allowed to apply to their permitting authority for adjustments in the applicable "package" of emissions limitations. The permitting authority could approve those adjustments upon finding that the new package would produce greater social benefits and at least equal environmental benefits when compared to compliance with the original set of limits.

Applicability:

Primarily to major sources of air pollution. Such sources generally have multiple emission limits, which were often set without considering particular circumstances. Often, adjustments in those limits based on site-specific factors can improve environmental results, reduce costs, and produce other social benefits.

Implementation Experience:

EPA's Project XL was based on a similar approach. Despite some successes, the program as a whole fell far short of the expected results. ***[Note to reviewers: Are there other jurisdictions where this has worked better? A counter-example would help a lot]***

New/Additional Implementation Options and Issues:

A new and more promising approach would correct the defects of Project XL. Two in particular stand out:

- The process for approving alternative approaches should be streamlined.
- The Project XL requirement that alternative approaches always produce greater direct environmental benefits than the original approach should be relaxed. Alternatives that (for example) achieve the same results at lesser cost should also be encouraged, since they will encourage future environmental improvement by reducing its cost.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits
   Since equal environmental benefits would be a minimum requirement, this approach would be environmentally beneficial.

b. Economic impacts
   Since sources themselves would apply for this relief, we can assume that granting it would result in cost savings.

c. Time
Any such approach would need to provide for timely processing and decision. This has been an issue in the past.

d. Ease of monitoring and accountability
Each new approach would have to provide for monitoring at least as accurate as the monitoring in the formerly applicable requirements. The frequency and type of monitoring may be adjust to focus on the highest priority emissions.

e. Jurisdictional attributes
Such relief would require EPA consent case by case. Alternatively, EPA could empower states to undertake such actions following established guidelines and criteria.

f. Would tool/strategy require CAA amendment?
This new approach would definitely benefit from express Clean Air Act authorization. However, the new sets of requirements could also workably be incorporated in consent decrees or enforcement agreements.

g. Replicability
Although this approach is inherently case by case, one successful example could reinforce another, potentially changing the regulatory framework for an industrial sector or process.

h. Impacts on personal choice and quality of life
None

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
Energy efficiency and carbon free alternative energy projects would be encouraged by this approach. Sources generally place a high priority on such projects, while EPA regulations as currently drafted often discourage them.

Privatization
Patty Strabbing
February 20, 2006

Brief Description of Tool:

Privatization is the outsourcing of certain air agency activities to private companies.

Applicability:

In theory, all of the air agency services and activities could be conducted by contractors. However, the need for oversight by a government employee, avoiding conflicts of interest and the setting of policies create a number of practical constraints. Privatization makes the most sense when used to address one-time, discrete assignments and instances where the work involves technical analysis or information gathering or management rather than decisions by an agency.

Implementation Experience:

There is a long history of EPA and state air agencies relying upon contractors to complete individual technical assignments, such as emission control technology surveys or economic impact analyses in support of rule development. For example, much of the technical work on the MACT standards was carried out by contractors under the direction of EPA staff. This has been a long standing, accepted practice. In addition, routine inspections and audits, and review of reports are some of the others kinds of activities that have been contracted out. An example of a routine inspection would be taking fuel samples at a terminal or gas station, conducting screening tests on site, and shipping any samples for further screening to the EPA lab. To a lesser extent, permitting services have been contracted. We are not aware of any formal assessment of the effectiveness and relative cost of contractors doing basic permitting activities. (*Can an AQM work group reviewer give us information on how well this has worked in practice?)*

New/Additional Implementation Options and Issues:

One option that has been considered from time to time is providing an option for a permit applicant to pay a supplemental fee for a contractor to expedite the permit application review. (*Can an AQM work group reviewer tell us if they have had experience with this and how well it worked?)* In some instances, the discussion of this alternative has led to a wholesale review and streamlining of permitting for all parties rather than requiring a payment and using contractors for only a few applications.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits

   If contracting speeds up the implementation of air programs, one can assume that air emissions reductions could occur more quickly than they would have in the absence of contracted work. On the other hand, the use of contractors does not ensure benefits. If for some reason the contractor is not able to be as effective as government employees, completion of work could slow down and benefits lost.

b. Economic impacts

   We do not know if contracting is cheaper than completing the same work with government employees. If emissions sources must pay contractor fees directly, their costs may rise significantly.

c. Time

This approach could be implemented in a year's time.

d. Ease of monitoring and accountability
   Contracting places the appropriate decision makers in government, however it may be harder for the agencies to have a true sense of understanding of day to day activities as well as perhaps difficulty in ensuring the day to day effectiveness of the program. From that perspective, monitoring and accountability are more difficult.
e. Jurisdictional attributes
   No specific attributes have been identified. This could be done at any level. We know of no EPA prohibition on privatization of state and local air agency responsibilities.
f. Would tool/strategy require CAA amendment?
   No.
g. Replicability
   It should be easy to duplicate any practices unless there are state or local laws that preclude contracting. Budgeting for contractors will be a separate impediment to replication.
h. Impacts on personal choice and quality of life
   No direct effect. Could make the quality of life of agency personnel better or worse. Either way, their roles will shift to "managers".
i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
   None identified.

Targeted Strategies
Pam Giblin
February 22, 2006

Brief Description of Tool:

- What is the tool/strategy and how does it work to reduce emissions?

  Targeted measures reducing specific chemical compounds tied to air quality problems in urban or industrial airsheds. Using a growing body of ambient air quality data collected by aircraft as well as traditional fixed monitoring, discrete chemical compounds can be identifed as playing a unique role in persistent air quality problems (e.g., high monitored ozone) within an airshed or within a specific airshed segment. Such persisent air quality problems may not be responsive to across-the-board precursor reductions. If discrete chemical compounds are linked to controllable point sources, control measures can be tailored to reduce both their long-term (annual) and short-term (hourly) emissions. The long-term controls can take the form of a market-based structure such as an allowance cap-and-trade. Refined modeling can replicate the ozone-reducing effect of such measures, and can support substitution of targeted measures for across-the-board precursor reductions with a higher cost and lesser air quality benefit.

Applicability:

- What areas and/or sources and types of emissions the tool primarily addresses?

  A successful example of such measures addresses industrial point sources. However, other source categories might be targeted in future examples.

- What needs and problems does it address?

  The tool addresses the problem of ever-greater emissions reductions needed to meet air quality goals in light of more challenging air quality standards and attainment deadlines. Scientific studies of ozone formation, for example, suggest that not all precursor reductions are equal. Rather than focusing exclusively on an across-the-board percentage precursor reduction, to which a modeled ozone exceedance may not be responsive, targeted measures allow SIP planners to focus targeted strategies on persistent air quality problems. Such targeting can be on a specific type of air quality event across multiple monitors (e.g., "spike" ozone events) or on a monitor-by-monitor basis. Multiple strategies may be appropriate where the analysis shows different causes for different air quality problems within a single airshed.

Implementation Experience:

- Examples of how the tool/strategy may have been applied/implemented in particular jurisdictions, including results and any lessons learned

A suite of Highly-Reactive VOC Control Rules in the one-hour Houston/Galveston/Brazoria ozone attainment demonstration SIP have played a central role in substantial ozone reductions measured in the airshed, and show even greater benefits in preliminary modeling of 8-hour attainment.

New/Additional Implementation Options and Issues:

- Other applications or ways of implementing the tool/strategy that have the potential to achieve new/additional emission reductions from what has been achieved before or in other areas

  Ozone and fine particulate are, in part, atmospheric reaction products. Ongoing air quality studies continue to identify reactivity associated with chemical compounds emitted by all source categories that serve both as precursors or reactants and as catalysts or promoters of ozone or fine particulate formation in the atmosphere. The Houston HRVOC program focuses on industrial light olefin emissions (ethylene, propylene, butadiene, butenes). Further studies in Houston and other airsheds may yield similar families of compounds that can be controlled with a targeted strategy.

  For each new/additional application, outline the pros and cons and any barriers that may exist to implementation for that application

  Some key chemical compounds of concern are emitted by biogenic sources or other sources for which targeted reduction strategies are more difficult.

Outline of Tool Attributes:

For each tool/application, provide the estimated or assumed attributes for each of the following:

a. Environmental benefits and disbenefits
   Environmental goals are better advanced by measures that target and reduce the most persistent air quality problems.
b. Economic impacts
   Economic impact can be more effectively managed where an equal or greater air quality outcome is attained by substitution of better-targeted measures instead of greater across-the-board reductions
c. Time
   Implementation of targeted measures is comparable to incremental increases in overall emissions mandates
d. Ease of monitoring and accountability
   Compliance demonstration provisions are built into the measure such that equal or greater accountability is obtained than is achieved under a traditional across-the-board reduction approach
e. Jurisdictional attributes

State, federal and local jurisdictions must cooperate to achieve success. Depending on the nature of the affected source category, one of those jurisdictions will be vested with primary authority. Typically, EPA-approved state rules are the vehicle for targeted measures.

f. Would tool/strategy require CAA amendment?
No.

g. Replicability
Measures can be targeted to persistent air quality problems in any airshed. Greater or lesser success can be expected depending on the nature of the source and the existing regulatory tools to craft a reduction strategy.

h. Impacts on personal choice and quality of life
Strategies can be targeted to achieve the greatest balance of air quality, economic and quality of life outcomes.

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
Targeted measures could be developed to address these resources. However, focus in this example is on ozone reductions in urban or industrial nonattainment areas.

~ Draft ~

Emission Limits Tool

Dan Johnson
January 27, 2006

Brief Description of Tool

Emission limits prescribe the maximum amount of an air pollutant a source or category of sources may emit, in terms of either mass or concentration. Emission limits are generally established in regulations, and must be achieved by a date specified in the regulation, or when the source is constructed unless a more stringent emission limit is required by an applicable BACT or LAER.

Applicability

Emission limits are best suited for discrete emissions sources, where compliance with the limits may be determined through source sampling. Conversely, regulations that apply to area sources – for example, dust from construction activities – typically prescribe operational practices that are presumed to limit emissions, but since the actual mass or concentration of emissions would be difficult to quantify, specifying emission limits would not be appropriate. Emission limits may be used to establish and require implementation of state-of-the-art emission controls, and, when used in conjunction with operating limits, restrict the impact of the source on air quality.

Implementation Experience

Emission limits have been used throughout the history of air quality management, with significant success. The tool is especially effective when used to address discrete air pollution sources with easy to measure emissions. Though often used in these applications, the emission limits tool is less effective at addressing emissions from many small sources, sources where emissions are hard to measure (for example, particulates from conveyor belts and fugitive emissions from leaking valves and seals), and for processes that may change frequently, such as chemical processing facilities where emission characteristics may change with each new product produced.

New/Additional Implementation Options and Issues

The emission limits tool has been used extensively for over 35 years. Few, if any, significant new implementation options are expected in the coming years.

Evaluation of Tool Attributes

A. Environmental benefits and dis-benefits

Emission limits result in either direct air quality improvements (when applied to existing sources) or limit the amount of air quality degradation from a source or source category (when applied to new sources).

B. Economic impacts
Setting emission limits is typically governed by rules and procedures that stipulate the manner in which economic impacts are to be considered. If applied uniformly to all emission sources, the governing rules would limit disproportionate economic impact between sources and sources categories.

C. Time
Once established, emission limits can be implemented over whatever timeframe is needed to balance air quality improvement needs with the economic burden of compliance.

D. Ease of monitoring and accountability
In general, the emission limit tool should not be used unless compliance can be determined through monitoring and/or accounting. Emission test methods can be easy and straightforward, or complex and costly. Alternative test methods (for example, measuring surrogate parameters to deduce emission rates) can be used in some applications to simplify monitoring.

E. Jurisdictional attributes
EPA may set emission limits to be applied nationwide, while state and local agencies may set emission limits that apply within their jurisdictions. Regional organizations have no authority to set emission limits, unless an inter-jurisdictional compact has been signed by leaders of the respective jurisdictions.

F. Would the tool/strategy require CAA amendment?
No

G. Replicability
Emission limits are easily replicated from one jurisdiction to the next.

H. Impact on personal choice and quality of life
Emission limits are not typically used in applications that would directly impact personal choice or quality of life.

I. Benefits and dis-benefits on energy efficiency and greenhouse emissions
Emission limits that are established using procedures that require consideration of energy efficiency and greenhouse gas emissions may result in benefits in either or both areas. If such procedures are not built into the process, an emission limit could result in energy and/or greenhouse gas dis-benefits.

Next Steps

AQM – Next Steps/Schedule… (DRAFT March 28, 2006)

March 3 -- Issue papers with recommendations due to the team leads.

March 13 – Teams 1 and 2 submit completed issue papers for distribution to Subcommittee. Note: An exception is the Team 1/Group 4 paper on partnership/improved communications; a first draft of that paper is expected March 13 for delivery to Team 1 only.

March 15 – Issue papers will be sent to the Subcommittee for review prior to our April meeting. Team leads should ensure issue papers and recommendations reflect vision and principles.

Teams 1 and 2 continue to meet in March and place recommendations into three bins. The bins reflect the draft framework presented in the scenario document prepared by John Seitz. The bins are:

1. Recommendations that could be implemented into the current AQM system
2. Recommendations that push the envelope, but likely could be built into the current statutory structure
3. Recommendations that go beyond the current statutory structure

March 27 -- After the binning exercise is completed by Teams, the recommendations and completed bins will be transmitted to the Subcommittee for review prior to our April meeting.

April 3 (5:00 to 7:00 pm) – Potential Team 1 and 2 Subgroup meetings in Crystal City, VA (as needed --- note we have a request in for meeting space)

April 4 (8:30 to 4:00) – Subcommittee will meet in Crystal City, VA. Following brief discussion of issue papers, each Team will present recommendations and the completed bins to the Subcommittee.

April 25 -- Team leads and AQM Co-chairs will meet in RTP and review the binned recommendations and the vision/principles. They will review which recommendations are likely to gain consensus or need further discussion, and decide on next steps for the Subcommittee.

May 18-19 - The Subcommittee will meet on May 18-19 (location TBD) to discuss and reach agreement on the binned recommendations and decide on next steps for each of the three scenarios. Assignments will be given to develop papers on each of the three scenarios. The three scenarios will reflect possible future AQM's.

June 22 – Draft scenarios will be sent to the Subcommittee for review

June 27-28 -- Subcommittee will meet (location TBD) to discuss the three scenarios and next steps for developing the draft report. Decisions to be made regarding the need for an additional meeting in July on any unresolved issues.

July 12 – Tentative Subcommittee meeting on unresolved issues.

August 1 -- The Subcommittee will meet in advance of the CAAAC meeting (August 2-3 in Washington, DC). The Subcommittee will finalize the scenarios and comments on draft report language.

September 20 – The Subcommittee will hold a planning call to discuss steps for the draft report.

October 18 – The Subcommittee will agree on the final report

October 25 – Subcommittee delivers report to CAAAC for review prior to November meeting.

October 31 – The Subcommittee will meet (location TBD) to formally agree on submitting the final report to the CAAAC

November 1-2 (need to check date) – Subcommittee formally presents report to the CAAAC.

November 30 – Comments from CAAAC will be accepted and appended to the final report.

December 20 – Final report delivered to EPA via CAAAC.

Appendices

- Vision and Principles
- Futures Presentation
- AQM Clean Air Act Advisory Committee Subcommittee on Air Quality Management Structure dated November 28, 2005

Vision and Principles
June 16, 2005

Introduction and Background

In Phase 1 of this process, the Air Quality Management Workgroup ("the Workgroup") agreed upon 38 recommendations for improving the AQM system. Most of these were either short term projects or ones that did not require substantial or radical changes to the current system. The Workgroup focused on these types of suggestions because it felt that (1) the time allotted to Phase 1 (9 months) was not sufficient for more comprehensive recommendations and (2) there were numerous straightforward suggestions that could and should be pursued expeditiously. The Workgroup also decided that before (or as a part of) beginning the Phase 2 discussion of more big picture recommendations, the group should develop a long term Vision and set of Principles to be a touchstone and guide development and discussion of those recommendations.

Building on initial work by the Workgroup, a small group of participants developed a draft Vision and Principles (the "V&P Group"). On March 19, 2005, the Workgroup met to discuss this draft. With some changes to the draft, the Workgroup adopted the Vision set forth below. There was some discussion of the draft Principles, but not enough time for full consideration.

Vision

Air in all areas of the country is of the highest quality, supporting a high quality of life that protects and enhances public health, ecosystems and other public welfare values, and economic well-being for all.

Governments, businesses, and the public all have a common goal to improve and protect air quality because they understand the relationship between economic well-being, public health and ecosystem health, and other public welfare values. They work together in an atmosphere of trust towards the common goal.

The nation's air quality management system is clear, open, transparent, accountable, effective, efficient, timely, equitable, cost-effective, and is consistent with science.

At its April 2005 meeting, the Clean Air Act Advisory Committee agreed to form a subcommittee ("the AQM Subcommittee") to continue with Phase 2 of the AQM discussions. The AQM Subcommittee will meet on June 16-17 in Ann Arbor. A threshold task for the AQM Subcommittee will be to settle upon the Vision and Principles. The V&P Group has had several more discussions to refine the draft principles for consideration by the AQM Subcommittee at its upcoming meeting.

Summary of V&P Group Work

In further considering the principles in preparation for the subcommittee meeting, the V&P group developed shorthand descriptors intended to capture the essence of the draft principles (see box below)

The AQM system should:

- Be performance-based
- Rely on shared responsibility and partnerships
- Use integrated, multipollutant, multimedia approaches
- Use regional, national or international reduction strategies where appropriate
- Use proven pollution reduction approaches
- Promote new and innovative pollution reduction approaches
- Be as simple as possible, but flexible to adapt to changing or unanticipated needs (e.g. new pollutants, new science, new techniques, etc)
- Provide as much certainty as possible to parties over time
- Consider other factors such as energy, land use and transportation
- Maintain and improve research efforts
- Make information and data accessible to all
- Be economically efficient
- Incorporate an international perspective

The Group also debated shortening the text of the principles themselves. Ultimately the Group decided not to shorten the text, but to provide an introductory phrase for each principle.

The V&P Group believes that the principles set forth below adequately express a consensus of the key issues and values the AQM Subcommittee should consider as it develops its Phase 2 recommendations. The V&P Group did not seek 100% agreement on the specific wording of each principle, believing that it was not necessary for the principles to serve their purpose of providing guidance to the subcommittee members as they consider additional recommendations.

The V&P Group submits the text below to the Subcommittee for its consideration.

Principles

1. **Protect Public Health and Welfare through a Performance-based Approach .**
   The Air Quality Management system should be designed to protect public health and welfare, and should be performance-based, with periodic, meaningful reviews to determine whether appropriate air pollutants are being regulated to safe levels and whether societal expenditures made are resulting in predicted health and environmental protection.

2. **Shared Responsibility and Partnership.**
   The Air Quality Management system should establish shared responsibility among tribal, local, state, and federal government for achieving air quality goals, but also maintain and assure tribal, local and state governments' authority to protect public health and the environment.

3. **Multipollutant and Multimedia Approaches.**
   The Air Quality Management system should integrate multipollutant and multimedia considerations into all aspects of air quality management, wherever possible.

4. **Regional, National, and International Measures.**
   In addition to employing local measures where appropriate, the Air Quality Management system should expand application of and develop regional and national measures, and where appropriate, international agreements, considering air quality needs and cost-effectiveness for every source sector (stationary, area and mobile) to address air pollution in an internationally, nationally or regionally consistent manner and consistent with the science of air pollution, including chemistry and movement.

5. **Traditional and Innovative Approaches.**
   The Air Quality Management system should acknowledge the role of, and include where appropriate, proven emissions reduction approaches as well as exploring and advancing reductions from all sources of air pollution, including non-traditional sources, and newer approaches such as innovative, episodic and voluntary measures. Through improved emissions measurement and characterization, the system should ensure that all emissions reductions yield appropriate levels of public health and environmental protection while being economically efficient.

6. **Effectiveness, Simplicity, Flexibility and Openness.**
   The Air Quality Management system should strive to be simple, open, effective, efficient and flexible and should be capable of adapting to new information, technical advances, innovations, and improvements in our understanding of the science of air pollution, its reduction, and its effects on health, welfare and ecosystems.

7. **Certainty and Predictability.**
   The Air Quality Management system should recognize that predictability and as much certainty as possible for all stakeholders will make progress more cost-effective and simpler to implement.

8. **Coordination with other Issues that Affect Air Quality.**
   The Air Quality Management system should coordinate air quality planning and management to the greatest extent feasible with planning and management in related areas, such as energy use, land use and transportation.

9. **A Strong, Continuing Research Program**.
   The Air Quality Management system should maintain and improve a vibrant research program and technical infrastructure, with a special emphasis on providing improved scientific and technical support for a program capable of

protecting human health and welfare from the increasing number of potentially toxic pollutants in the atmosphere in an effective and timely manner while not unnecessarily impeding economic activity and technological progress.

10. **Information Must Be Accessible to All.**
    The Air Quality Management System should provide on an ongoing basis all parties with access to air quality related information (ambient data, emissions inventories, air pollutant impacts, cost and benefit information, air quality analyses, technology assessments) in an information friendly manner as a means to enhance the understanding of air quality issues among all stakeholder groups, to encourage independent assessments and to stimulate effective dialogue within the air quality community.

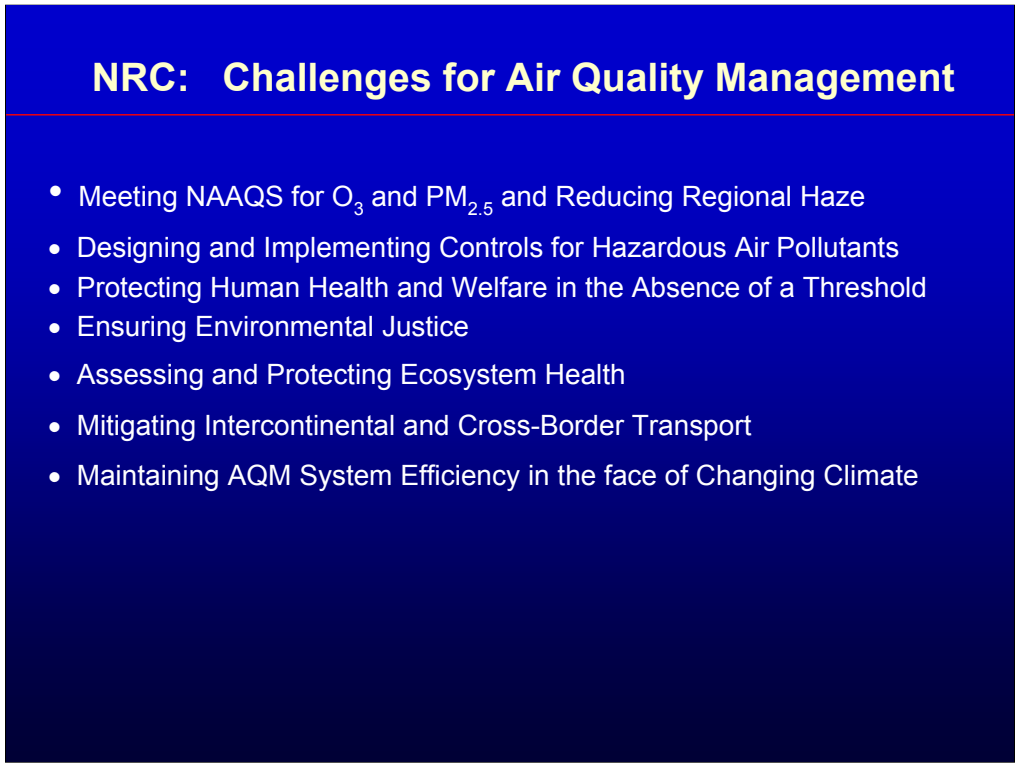
11. **Efficiency.**
    The Air Quality Management system should strive to achieve the public health and environmental goals at the lowest possible cost and recognize the need for American businesses to be competitive.

About this presentation

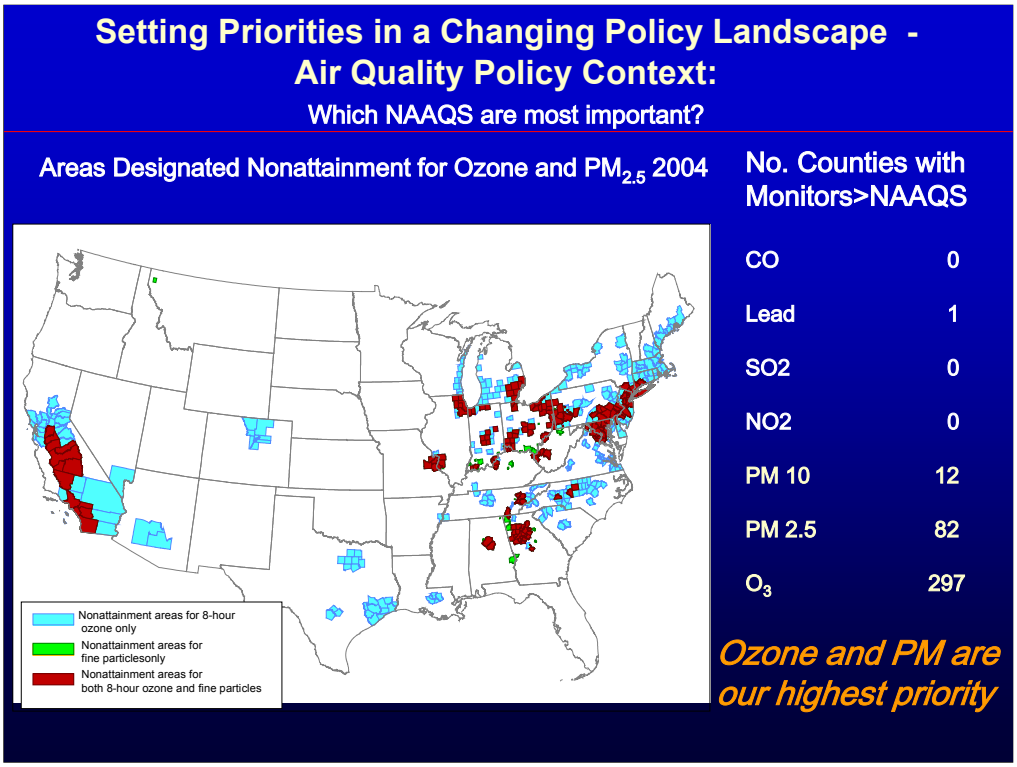
This EPA staff presentation was delivered to an October 18 meeting of a subcommittee of EPA's Clean Air Act Advisory Committee (CAAAC). The subcommittee was meeting as part of their work to address the recommendations of the National Academy of Sciences for improving air quality management in the United States.

Purpose: The purpose of this presentation is to stimulate discussion of the kinds of challenges air quality managers could face in the next 10-15 years. It is intended to assist the CAAAC Subcommittee on Air Quality Management in its discussions regarding improvements to the current AQM system. The 2004 NRC report listed a number of likely challenges to air quality management in the US over the foreseeable future. This briefing examines the basis for the NRC findings and expands upon some of them to provide more specifics. The approach uses a combination of qualitative and quantitative forecasts and analyses developed by EPA and others to cover a range of relevant air quality problems and other factors that air quality mangers may need to address. It includes some scenarios, forecasts and alternative policy choices related to criteria pollutants and air toxics, emerging issues related to long-range transport, the multi-faceted ways in which climate and air quality/policy might interact, and touches on emerging themes and societal issues.

Limitations and uncertainties: The quantitative emissions and air quality forecasts summarized here were gathered from a variety of sources and projects. The numerous uncertainties inherent in such forecasts are documented elsewhere but are important to keep in mind here. The alternative policy scenarios are not the only possible ones, and several topics are treated only as a qualitative reminder of their potential importance. The issues included and highlighted represent one EPA staff perspective and not Agency policy. Further, the presentation is not definitive. We encourage readers, especially CAAAC subcommittee participants, to articulate a variety of alternative views on these and to identify other potential issues not highlighted.

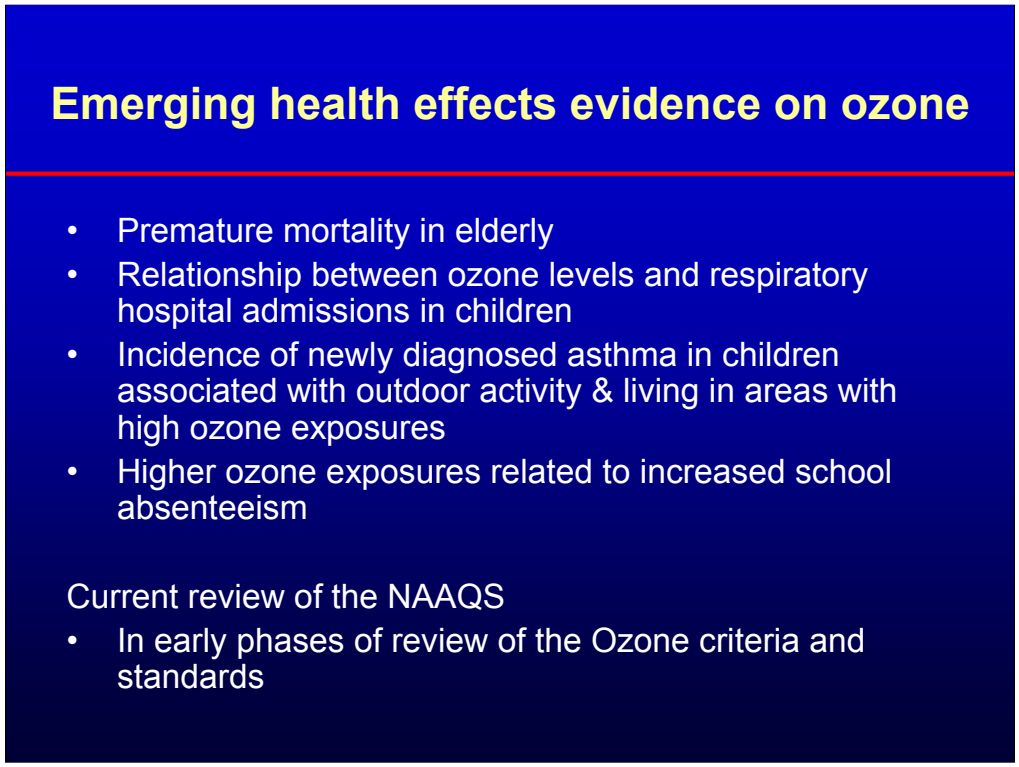


The NRC summarized these seven major challenges for air quality management. This presentation focuses more on the quantifiable and technical, rather than normative, aspects of these challenges. As such, it touches only briefly on the the issues of addressing thresholds, environmental justice, and protecting ecosystems.



This slide depicts the most current single year (2004) of valid US monitoring data for the six criteria pollutants (including two PM indicators). Note that for most of the NAAQS, 3 years of valid data are required to determine attainment status, so the data here are only indicative of potential attainment/nonattainment. Nevertheless, levels of these pollutants have been dramatically reduced over the last two decades, a measure of some success for the US system of addressing air quality problems. In terms of the current NAAQS, it is clear that PM and ozone are by far the most significant problems remaining today.

The map illustrates the pattern of persistent problems for fine particles and ozone, including much of the eastern US, the gulfcoast, and California. The red areas show where the problems strongly overlap. It is of note that comprehensive strategies to address PM and ozone in these areas will require control of sources of SOx, NOx, volatile organic compounds (including some air toxics), and possibly CO.

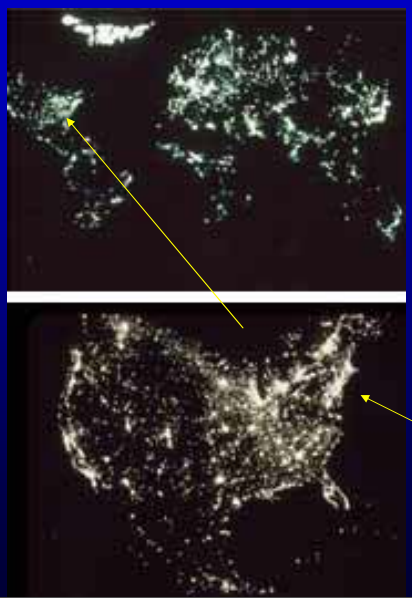


Besides being the most pervasive criteria pollutants, scientific evidence continues to grow that PM and ozone can produce significant health effects. Mentioned in the verbal presentation, but not shown here, are the now well recognized relationships between PM and a number of significant effects, including premature mortality, hospital admissions for cardiovascular and respiratory conditions, and effects on children. Importantly, scientists have found a link between ambient fine particles and heart rate in controlled human and animal studies as well as in epidemiological studies that strengthens the plausibility of these effects.

This slide focuses on emerging evidence that, in addition to the familiar lung function changes and symptoms in controlled human studies, ozone is linked to mortality, hospital admissions, school absenteeism, and asthma incidence.

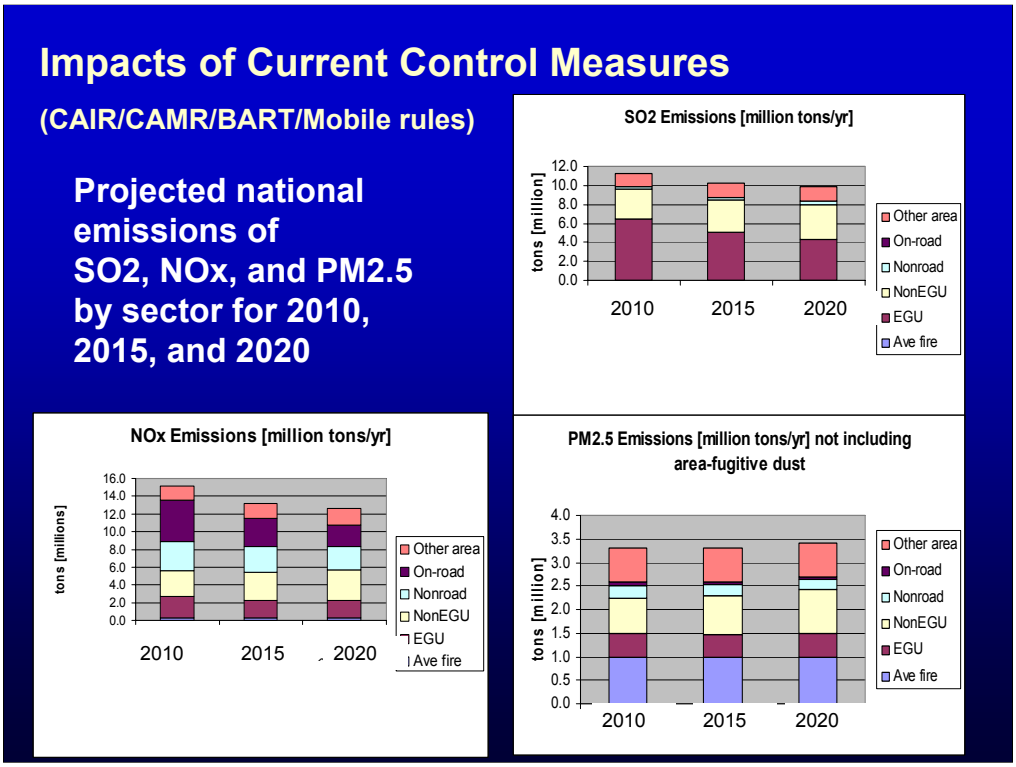
Not shown here are the links between these pollutants, their precursors and effects on public welfare, including visibility impairment, crop and ecosystem damage from ozone, acids, and nutrients, and materials damage.

Air Pollution Scales of Influence



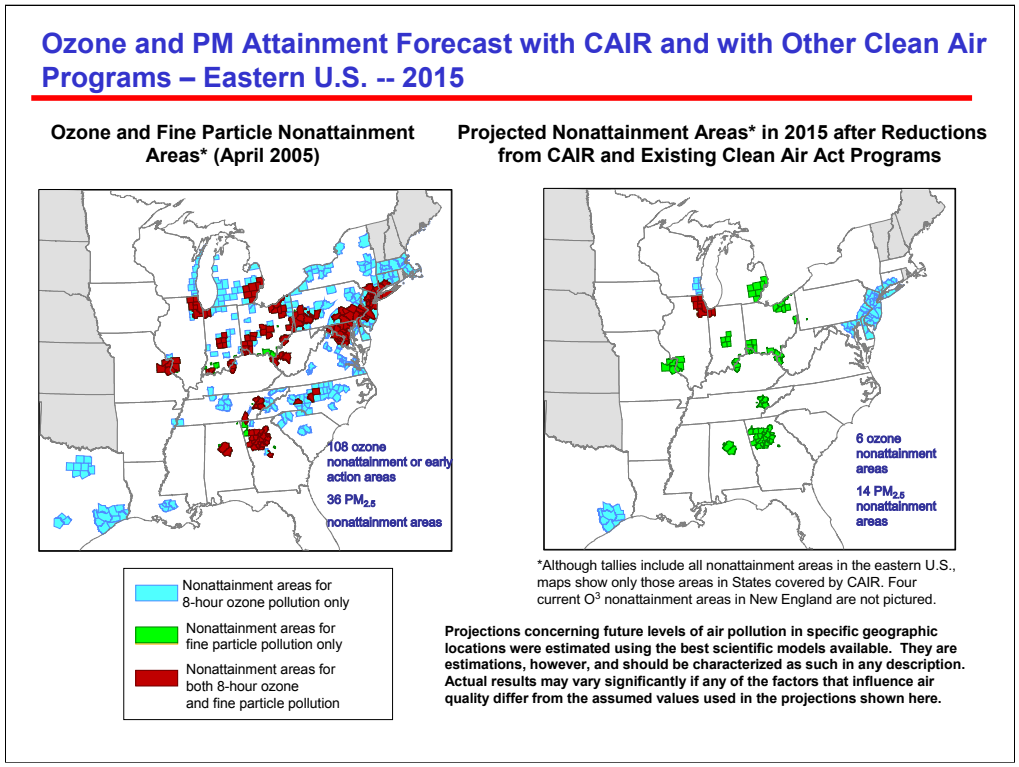
- Global – e.g. climate change, stratospheric ozone, persistent-bioaccumulative toxic pollutants (Hg, dioxins)
- **Regional** – e.g. ozone, fine particles health, acid rain, visibility, nutrient loadings
- **Local** –e.g. ozone, PM health, air toxics
- Personal – indoor air/outdoor penetration, asthma

One of the themes that the NRC noted was the need to address air quality on the appropriate geographical scale. Both criteria and toxic air pollution problems and solutions can very significantly across multiple scales both larger (regional/global) and smaller (personal) than the traditional focus of early AQM programs, which was on local/urban scales.



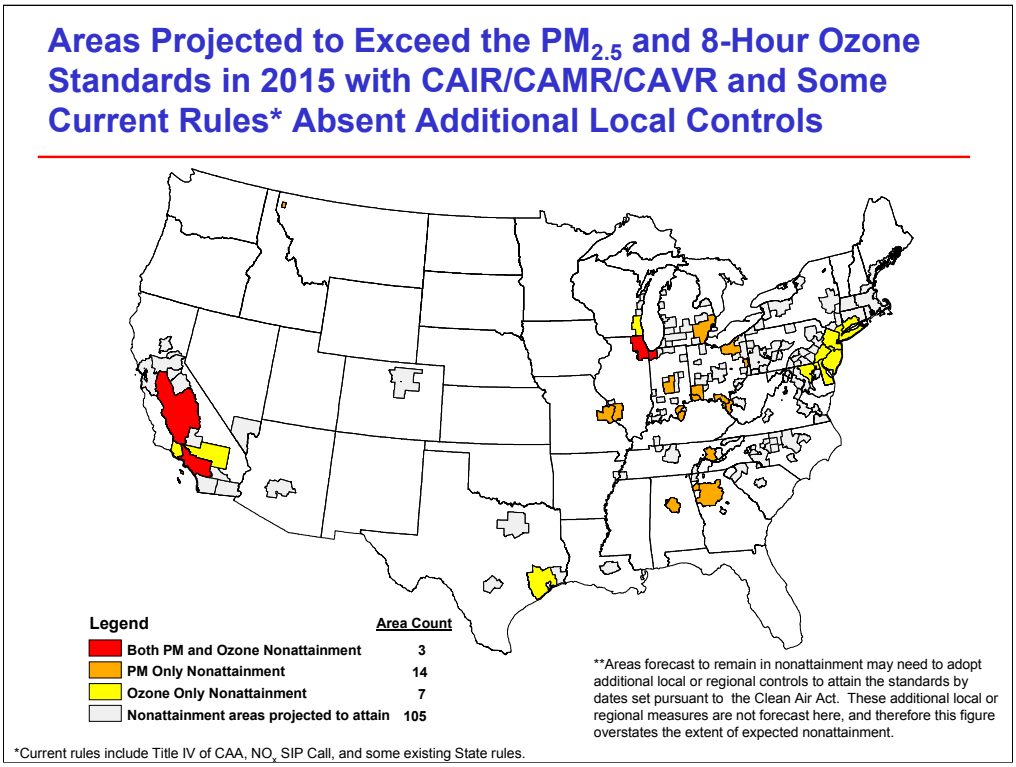
This is the first in a series of emissions/air quality forecasts for 2010, 2015, and 2020 that are based on recent and ongoing regulatory impact analyses (RIA), including the Clean Air Interstate Rule, the Clean Air Mercury Rule, and the Clean Air Visibility Rule. Shown are emissions forecasts for pollutants needed to model fine particle concentrations and ozone (VOC not shown) under a 'regulatory base case' scenario. That is, the forecasts reflect one scenario of projected activity growth in key emitting sectors (e.g. EGU, mobile source VMT, industrial sources) as limited by regulations at the state, local, and federal levels that are in State Plans or National Rules/requirements that have been promulgated (e.g. NOx SIP call, CAIR/CAMR/Mobile diesel, Tier 2 rules, NC Clean Smokestack program). This means the forecast does not include additional strategies that States will need to adopt to make progress towards attaining the ozone and PM NAAQS over this period. It is one picture of what the States might start with in developing such strategies and plans.

Key Uncertainties: All activity and rule forecasts are subject to substantial uncertainty regarding the economy and other factors. Because growth is applied to current estimates, the inherent uncertainties in current inventories affect these estimates. Our EGU inventory and forecast models for SOx and NOx are likely significantly better than for industrial and other sources. In some cases, forecasts are biased high because expected improvements in future controls can not be objectively determined. The lack of progress or increase in some categories over time may not be realistic. Direct PM emissions estimates for all categories are particularly uncertain, both in the base and future cases. While individual mobile source technologies are well characterized, significant uncertainties are suggested by comparisons between emissions and ambient measurements. These uncertainties are more fully discussed in the relevant RIA and background Technical support

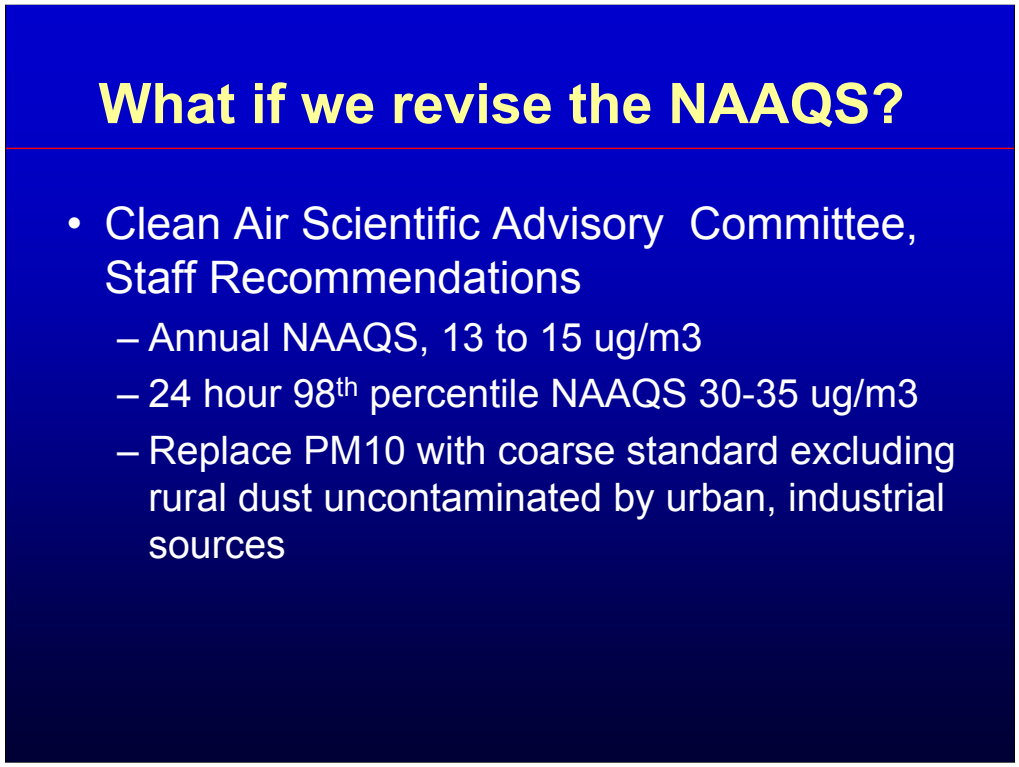


These maps reflect the ozone and PM air quality attainment forecast consistent with the emissions projections in the previous slides. It is taken from the CMAQ and CAMx modeling done for CAIR/CAMR in the eastern US. These results suggest that the current patterns of regional air quality will significantly improve, but that substantial residual nonattainment may be expected without further controls beyond the regulatory base case. Further, the overlap between ozone and PM nonattainment has greatly diminished, with ozone nonattainment most prevalent in high population areas along the NE corridor, Houston, and Chicago coasts and PM more concentrated in the midsection. Except for Chicago, these heavily populated areas (the NE corridor and Houston) would meet the current PM2.5 NAAQS, with nonattainment occurring in the midsection from Michigan down to Alabama and Atlanta. The common thread in eastern projected PM nonattainment areas appears to be higher regional PM2.5 levels, frequently combined with a concentration of local sources of direct PM emissions such as industrial activities.

Key Uncertainties: In addition to the emissions uncertainties noted previously, these air quality models are subject to a number of well-documented uncertainties related to meteorology, chemistry, and transport simulation and forecasts. In addition, the meteorology that drives these models is likely to vary from that in any particular forecast year.

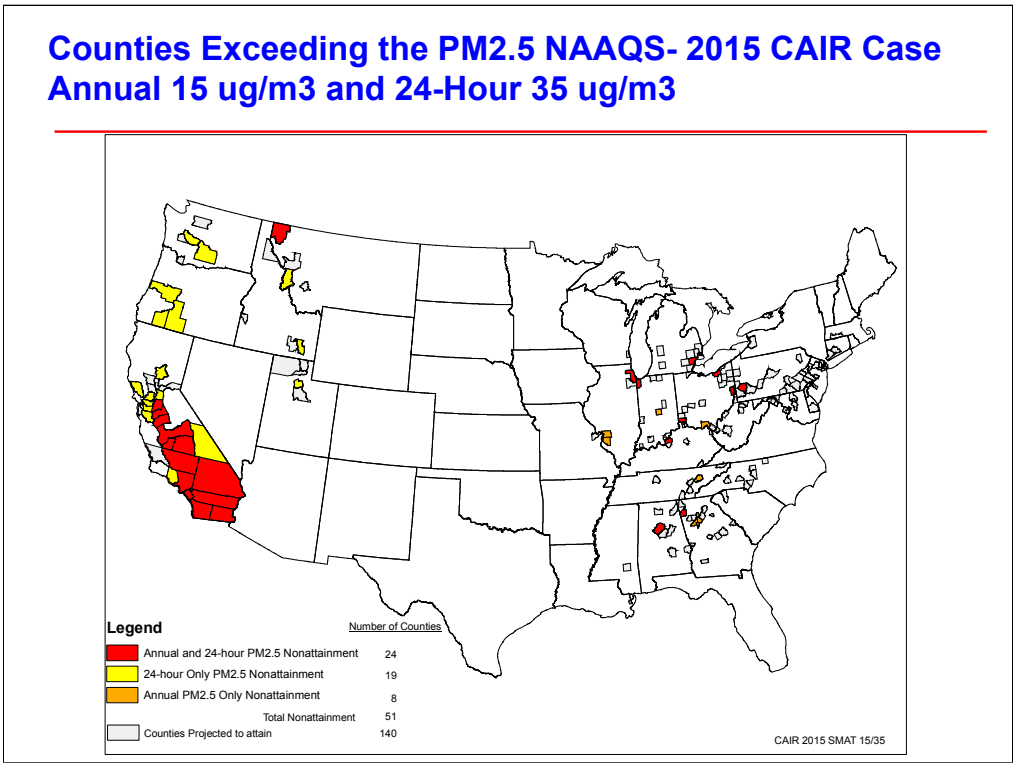


This map expands the 2015 regulatory base case scenario forecast to the entire country. Residual nonattainment in the West is confined to California. The CAIR/CAMR/CAVR programs are not expected to produce much impact on attainment in the West, so other programs (mobile, local) likely account for the forecast improvements. It is clear that attainment strategies in the East may involve additional local or regional controls, but less clear which strategies would be most cost-effective. In the West, all controls would be intra-state, but this does not exclude long-range transport considerations in a state the size of California.



While the previous slides provide a snapshot of projected issues under the current standards, both the PM and ozone criteria and standards are under review. The PM review, in particular, is nearing completion with a proposal on whether to revise the standards set for December 20th of this year and a final decision by September 27th, 2006. The review of the fine particle NAAQS provides an illustration of one of the challenges the NRC listed, that is, selecting an appropriate level of protection for pollutants that do not have a clearly defined threshold below which there is no effect. This issue of assessing the health effects evidence and conducting quantitative risk assessments given such uncertainties is addressed in the PM staff paper (ref), and with reviews and recommendations of the Clean Air Scientific Advisory Committee (CASAC) in a June 6, 2005 letter on the staff paper (ref).

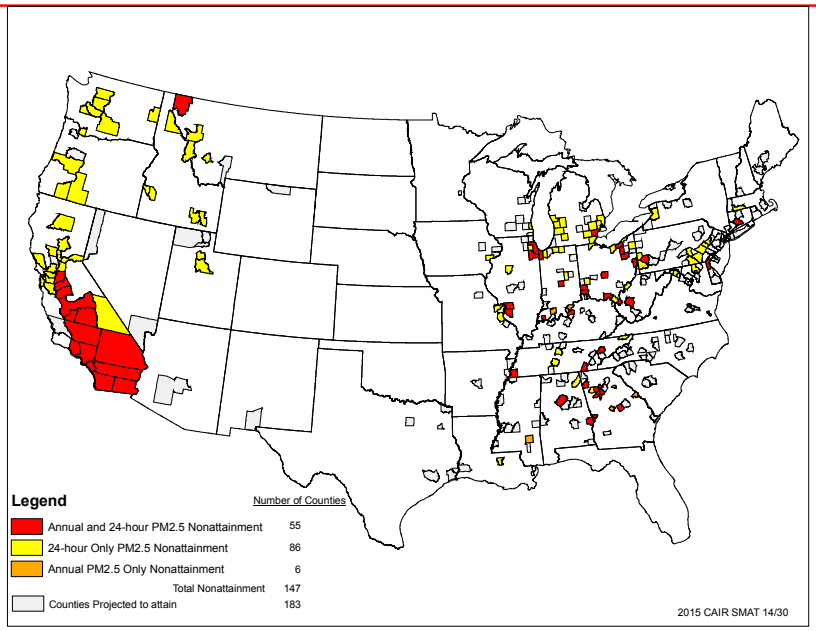
The combined range of standards recommended by staff and CASAC is summarized briefly above. The next two slides illustrate projected air quality in 2015 under two of the alternatives PM2.5 NAAQS taken from the upper to lower portion of the above ranges.



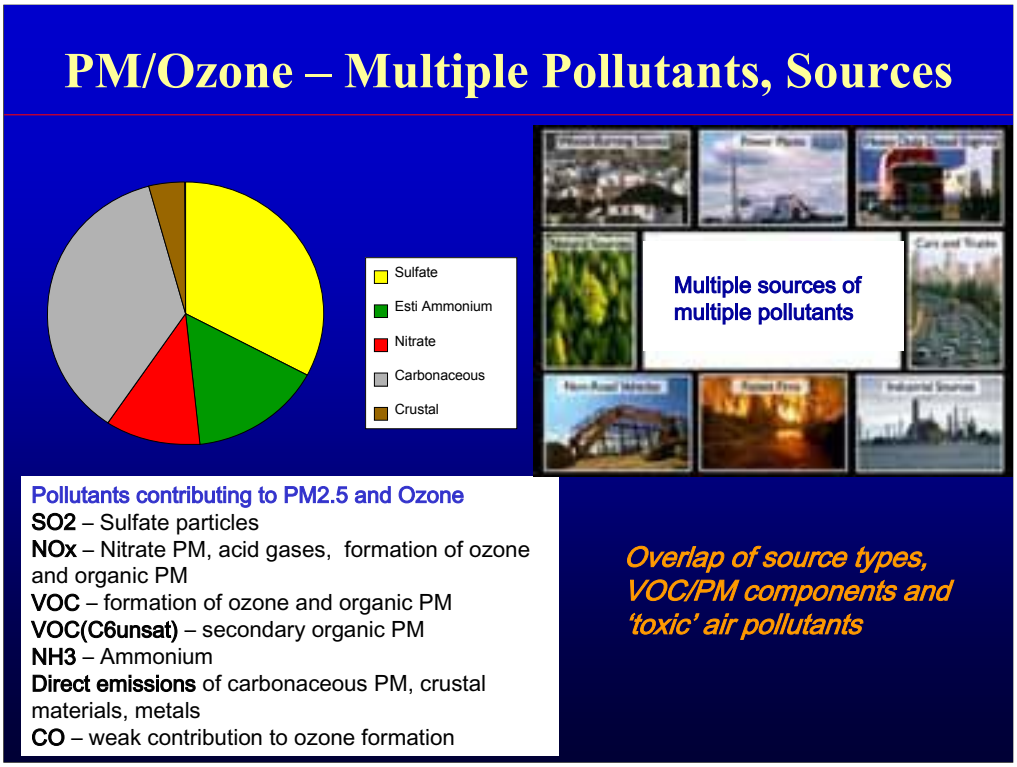
This map shows forecast PM2.5 levels in 2015 with the current regulatory base case but compared to an alternative NAAQS that maintains the current annual standard but establishes a tighter 24-hour standard taken from the upper bound of the CASAC range. The results suggest that CAIR and other base programs will be very effective in attaining the 24-hour standard – only one county in the East would exceed the tighter 24-hour standard but not the current annual standard. It is possible that additional local or regional strategies adopted by eastern States to meet the annual standard would result in compliance with both standards in many eastern areas where both are forecast to be in violation. The major new residual non-attainment counties forecast for a tighter 24-hour standard under the current regulatory base case scenario are almost entirely in the West, particularly in the Northwest where seasonally high levels of PM2.5 are often caused by wintertime wood smoke.

Major Uncertainties: In addition to those noted previously, the daily CMAQ results used to generate 24-hour 98th percentile values are likely to be more uncertain than the annual averages – because of meteorological, current air quality, and emissions inputs as well as modeling uncertainties. Nevertheless, the predicted effectiveness of regional SOx and, to a lesser extent, NOx controls on reducing peak 24-hour values in the East is consistent with the observed composition of PM2.5 on peak days.

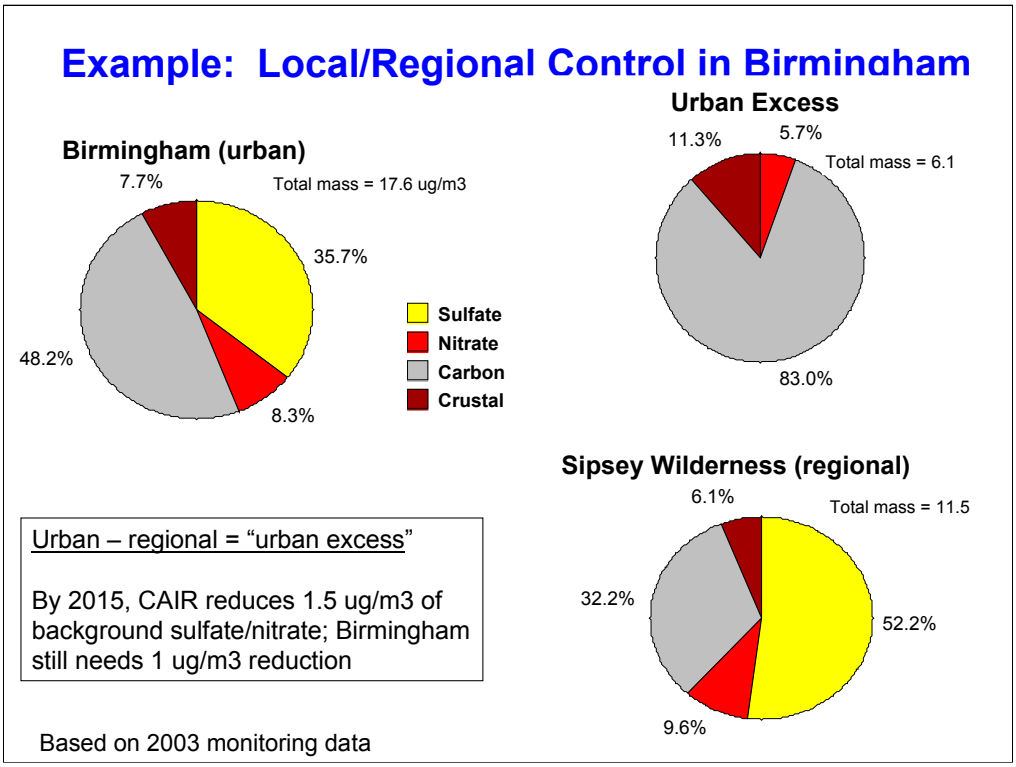
Counties Exceeding the PM2.5 NAAQS- 2015 CAIR Case
Annual 14 ug/m3 and 24-Hour 30 ug/m3



Same as previous slide, but under alternatives taken from the lower portions of the recommended CASAC range of alternatives. This alternative shows a larger number of residual nonattainment areas in both the East and the West. The results suggest that tighter annual standards in this range have their major effect in the East where even in 2015 a higher regional background remains. The West appears more affected by tighter 24-hour standards, but at the levels depicted here, a significant number of additional 24-hour violations occur in the East as well.

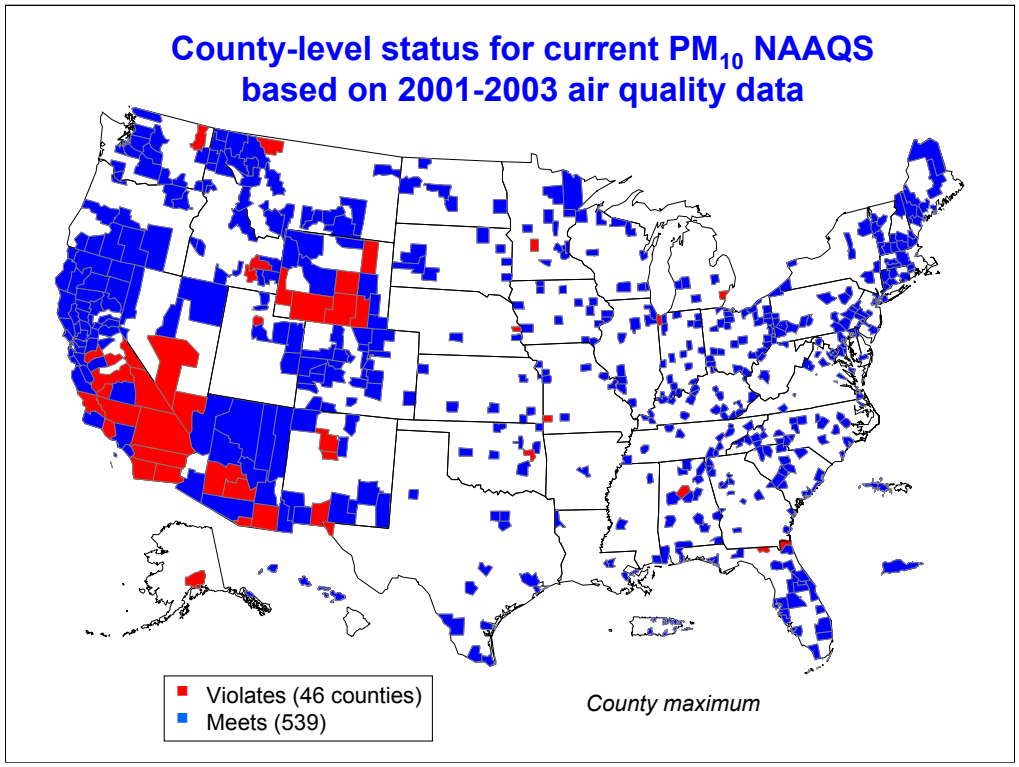


In further posing potential attainment strategy considerations, it is useful to illustrate the major sources and emissions of interest to ozone and PM. In many cases, the pollutants and sources of interest overlap for criteria and toxic air pollutants. This perspective is consistent with the NRC recommendations for multi-pollutant and sector-based strategies.



As an example of the alternative combinations of strategies air managers need to address for PM, this slide illustrates the composition of local and transported PM2.5 from data collected in 2003 for Birmingham and nearby Sipsey Wilderness (IMPROVE). The Sipsey site is used here to provide a rough index of the transported particles as they affect Birmingham and the difference in measured values (Birmingham – Sipsey) approximates the quantity and quality of locally generated particles (urban excess). The regional background today is over half of the PM2.5 concentrations in Birmingham. Our modeling suggests that by 2015, CAIR would reduce that background (ammonium acid sulfate/nitrate) by about 1.5 ug/m3, bringing this site within about 1 ug/m3 of the current annual PM2.5 NAAQS. If the State chooses to adopt local controls, this suggests about a 17% reduction in key local emissions (carbonaceous PM being the largest fraction) would be needed. Otherwise, additional regional controls would need to be considered.

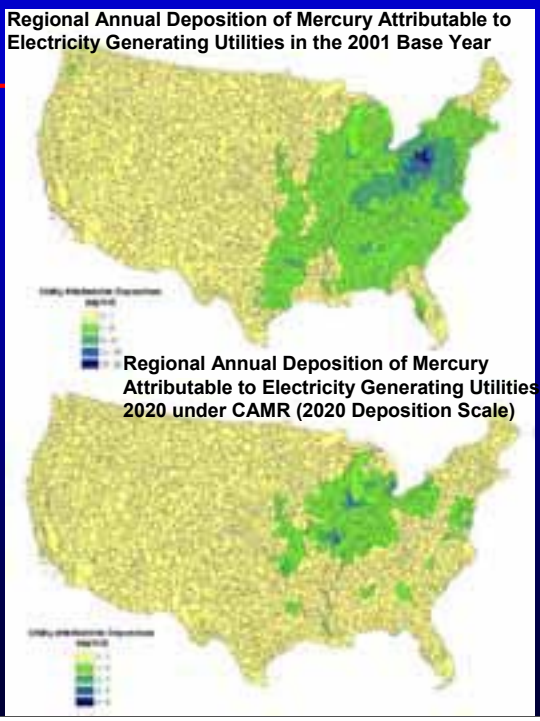
Major sources of PM in Birmingham include commonly found sources such as diesel and other mobile emissions as well as steel and other industries. EPA is planning local modeling of this and a few other areas to examine the effectiveness of local strategies for an upcoming RIA for the PM NAAQS review.



This map shows 46 counties that exceed the current PM10 standard based on 2001-2003 data. Under the alternative coarse particle indicator recommended by EPA staff and CASAC (PM10-2.5 qualified to exclude coarse particles uncontaminated by urban/industrial sources), a number of the monitoring sites illustrated here would no longer be measuring particles of concern.

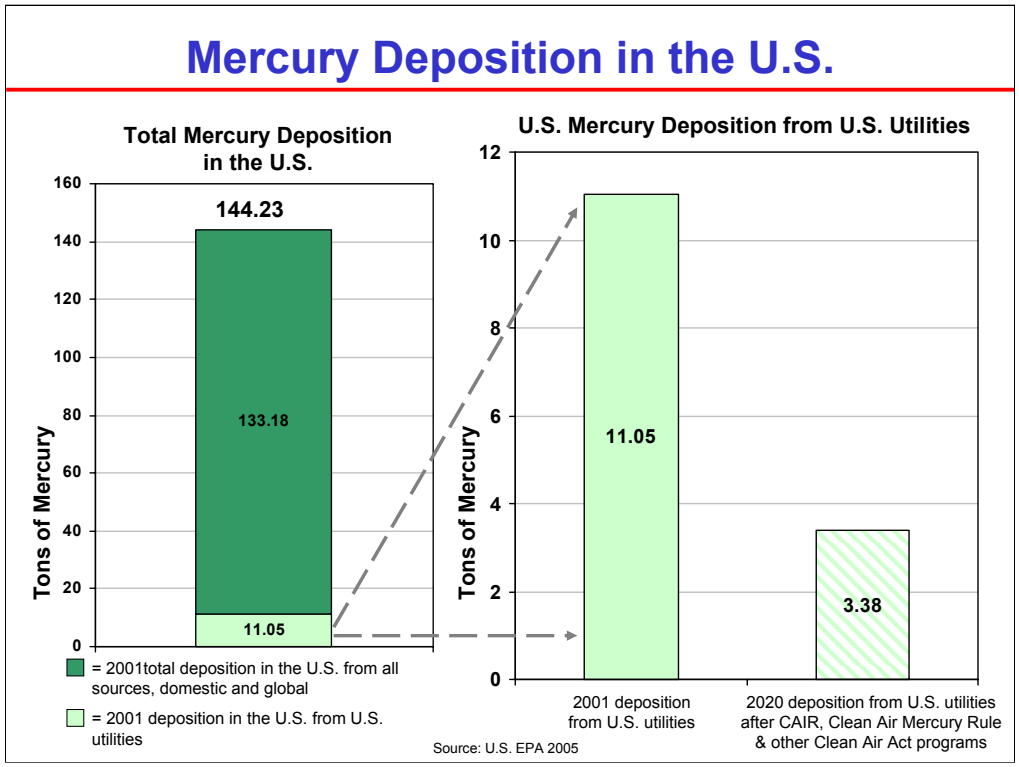
Reductions in Hg Deposition under CAMR

- By 2020, EPA projects significant reductions in utility attributable Hg deposition.
- Reductions in deposition are largely due to the implementation of CAIR controls at utilities, and CAMR is projected to make additional reductions in regional and worldwide deposition.

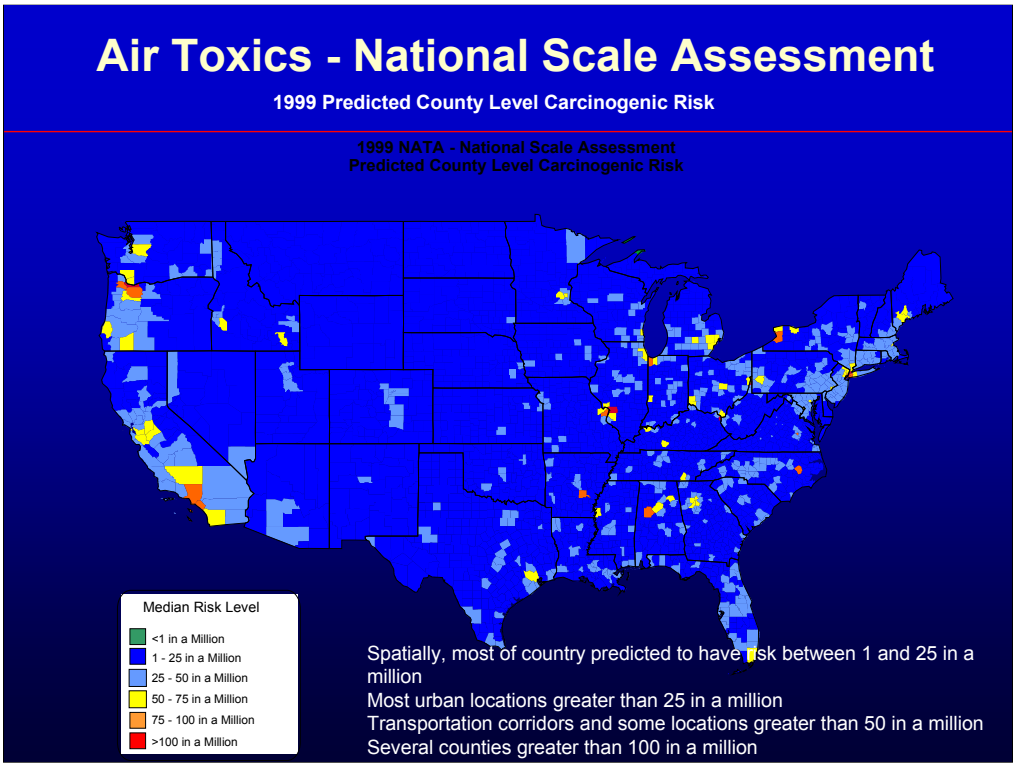


The CAIR/CAMR rules illustrates the multipollutant link between criteria pollutants addressed by CAIR and a persistent bioaccumulative toxic air pollutant, mercury. These maps focus on the CMAQ modeled reductions in deposition of mercury ascribed to EGUs under the CAIR/CAMR rules.

There are additional uncertainties in forecasting and modeling mercury emissions, deposition and chemistry documented in the CAMR RIA and Technical Support Documents.

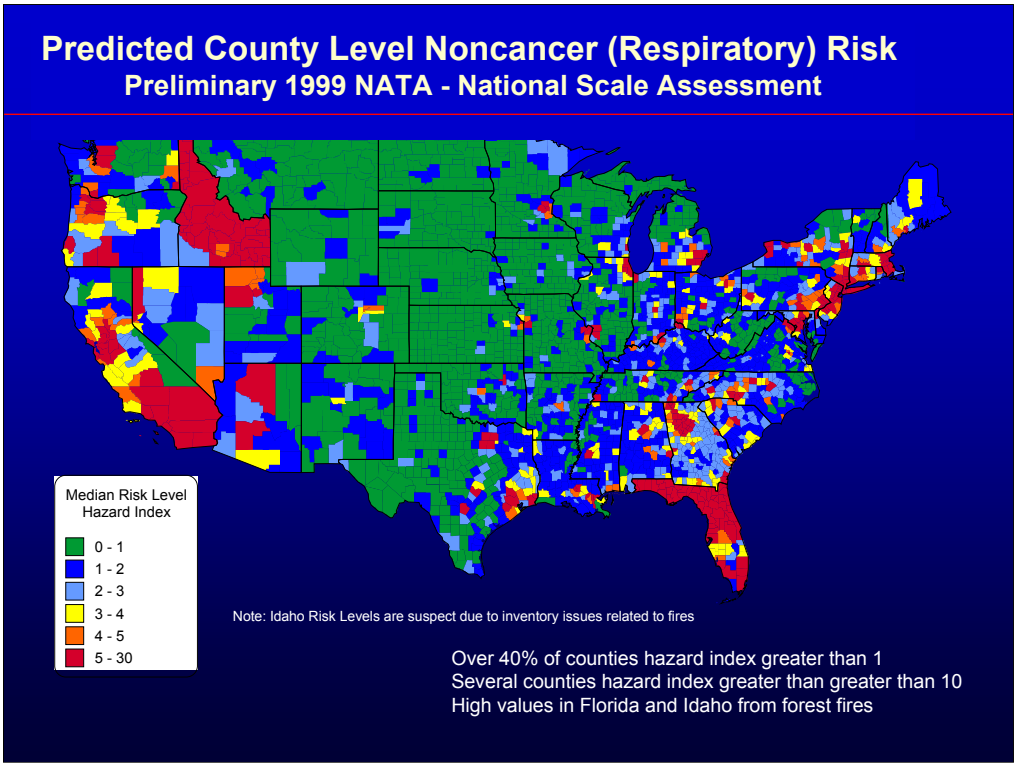


This provides an overall comparison of the contribution of US EGUs to total mercury deposition in the US. As shown on the map, the fraction coming from EGUs is higher in portions of the eastern US than in the country overall.

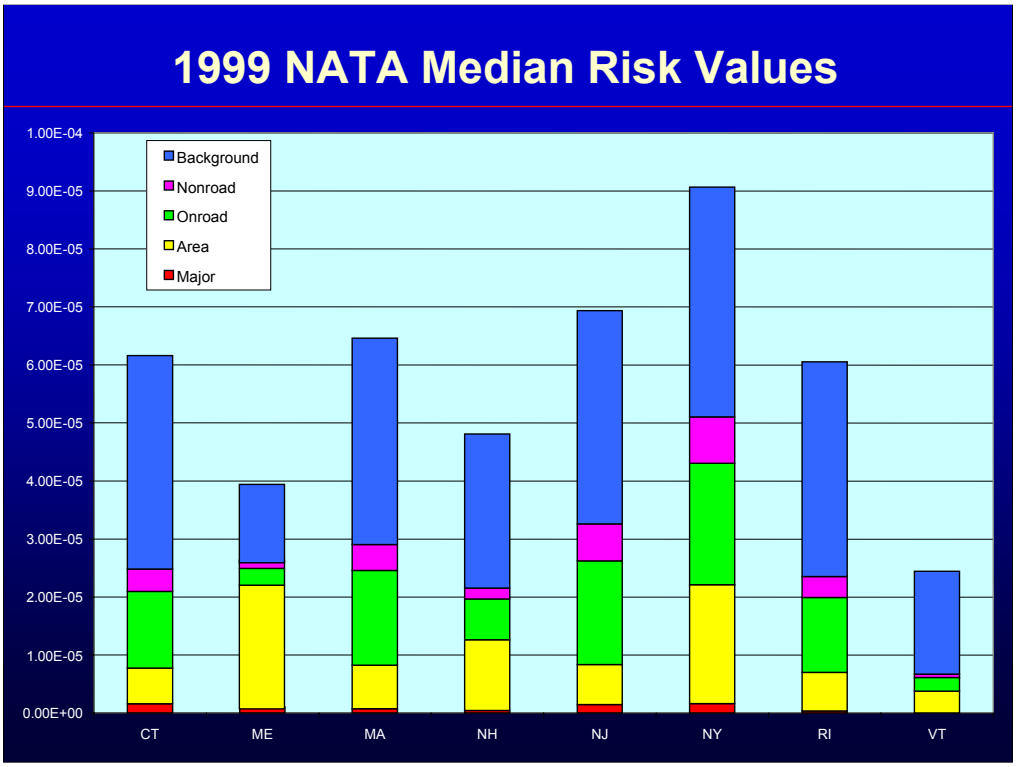


The National Air Toxics Assessment (NATA) has been examining the geographical patterns of cancer and other effects associated with multiple air toxics. This map represents a preliminary cumulative cancer risk assessment from the major known air toxic contributors for 1999. It is currently undergoing review by States and others and is provided only as a rough benchmark for comparison to the future.

Details and numerous uncertainties in these calculations appear in an upcoming NATA report. The monitoring for air toxics is not as comprehensive or long-running as for criteria pollutants and substantial modeling is necessary to provide coverage. The results indicate a background risk for much of the nation in the range of between 1 and 25 in a million, with much of that coming from a single compound, benzene. The areas of higher risk occur in populated urban areas and the East that tend to overlap the ozone/PM non-attainment maps.

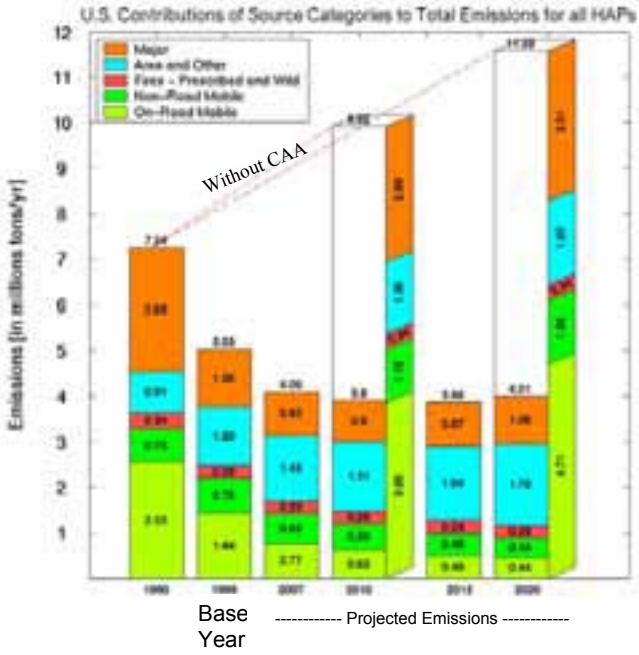


This provides the same kind of preliminary NATA map for respiratory noncancer effects. Here, cumulative toxic concentrations are referenced against a conservative benchmark value to derive a 'hazard index.' The green areas are below the index threshold of 1. Some of the spatial patterns (e.g. Idaho) are artifacts due to the fact that the underlying data are derived from state reporting and variations exist among states. The Idaho data will be corrected in a future version. These results are also undergoing further review. Areas of high HI are coincidental with areas that are in nonattainment for PM/O3.



This figure illustrates the relative contribution of various source categories to cancer in a number of northeastern states. The figure shows variability across states with background, area, on-road mobile being the largest contributor to risks. Again these are preliminary data. Background results are mainly from long-range transport as well as un-inventoried sources.

US (All 50 States) Emissions of HAPs by Source



* After 2010, stationary source emissions are based only on economic growth. They do not account for reductions from ongoing toxics programs such as the urban air toxics program, residual risk standards and area source program, which are expected to further reduce toxics. In addition, mobile source reductions are based on programs currently in place. Programs currently under development will result in even further reductions.

Key Findings

- CAA has been very effective in reducing overall tonnage of air toxics
- In absence of CAA, total emissions would be more than twice those projected in 2020

From NATA: This chart shows historical emissions from 1990 (sum across all HAPs), the 1999 baseline from which we did the projections, and future year emissions for several years which we projected from the 1999 inventory. We grouped the emissions into the major (i.e. stationary sources of certain size), area and other, fires (which is typically aggregated in with area and other, as it is for NATA), onroad mobile and nonroad mobile. Fires is typically aggregated within area and other but we separated it out from other area and other categories for the purposes of showing its influences on the results because of the issues and uncertainties in the base and historical emissions and its future year projection.

The dashed line represents our estimate of emissions that would have occurred without the CAA, considering emissions growth from 1990.

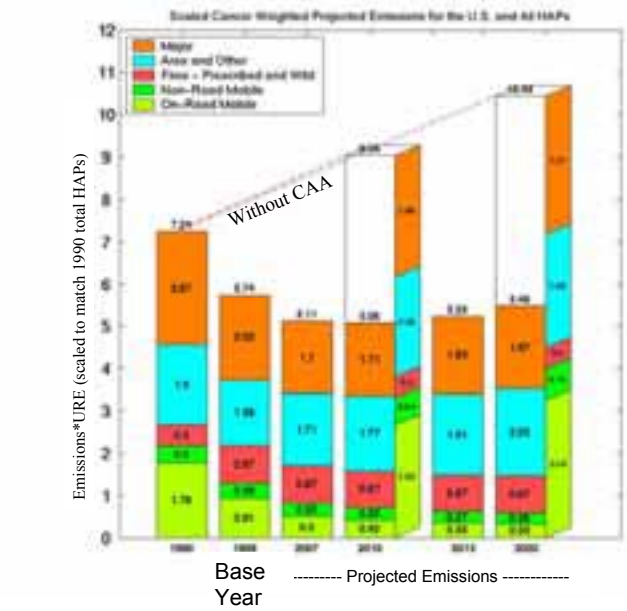
The data show that the CAA has been very effective in reducing overall tonnage of air toxics: Without EPA's programs, we would have seen a 50% increase in emissions from 1990 to 2020; however, with EPA's programs, we expect a 40% decrease from 1990 levels by 2020.

Major source emissions decrease through 2010, reflecting reductions associated with MACT program. Significantly, area and other are projected to increase without further controls. Most of the standards resulting from the area program are not included, however.

Mobile source emissions decrease thru 2020 with additional decreases likely from future programs (e.g., MSAT2)

As mobile source emissions decrease, the contribution of stationary source emissions to total HAP increases over time.

Toxicity-Weighted Emissions (Cancer)



Key Findings

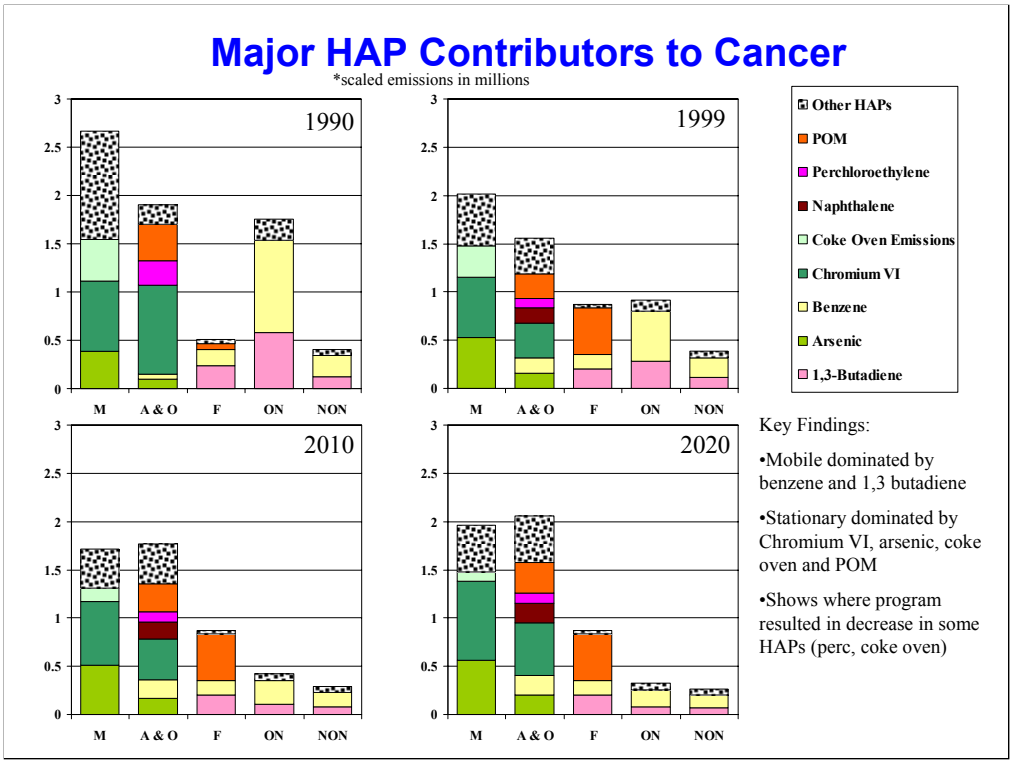
•Major source programs target overall tonnage more than toxicity weighted tonnage

• Initial area source efforts have reduced some of the most toxic HAPs (Perc and Chromium VI)

•Mobile source tox -weighted trends closely follow total HAP trends

•Fires plays larger role for in toxicity-weighted situation; trends cannot be obtained due to methodology differences in emissions estimation

This is similar to previous slide, however the emissions have been "weighted" by their respective toxicity factors to depict cancer effects. In other words a ton of Chromium VI would be depicted to be more (is much more toxic) than a ton of benzene. Future projections show reduction of cancer-weight tons are less than those expected for straight tons, thus future reduction efforts must target more toxic pollutants. The next phase of CAA will target these toxic HAPs, such as the residual risk program.



This slide depicts the relative pollutant contribution to cancer weighted emissions for each year/source sector.

Key Findings:

Mobile dominated by benzene and 1,3 butadiene

Stationary dominated by Metals (Chromium VI, arsenic) and coke oven and POM (PAHs)

The slide shows where program resulted in decrease in some HAPs (perc-dry cleaning MACT, coke oven -Coke oven MACTs)

Chart Key

M = Major Sources

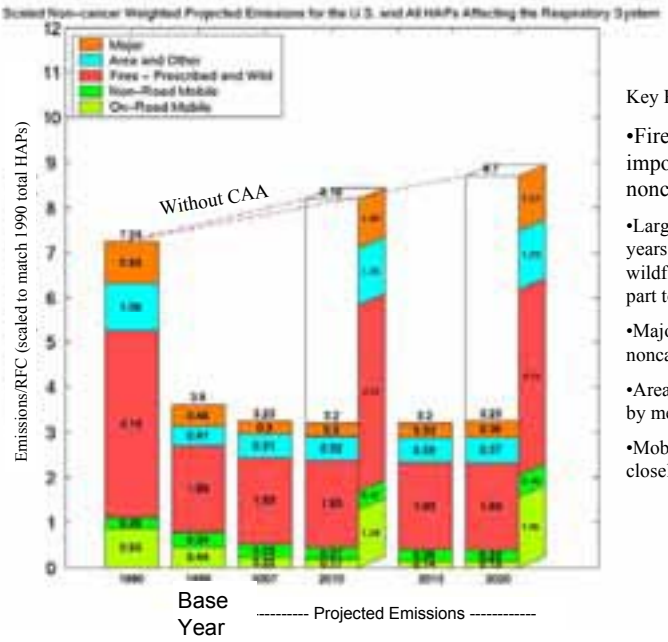
A&O= Area Sources and Other

F= Fires

ON= On road Mobile Sources

NON= Nonroad Mobile Sources

Toxicity-Weighted Emissions for NonCancer



Key Findings

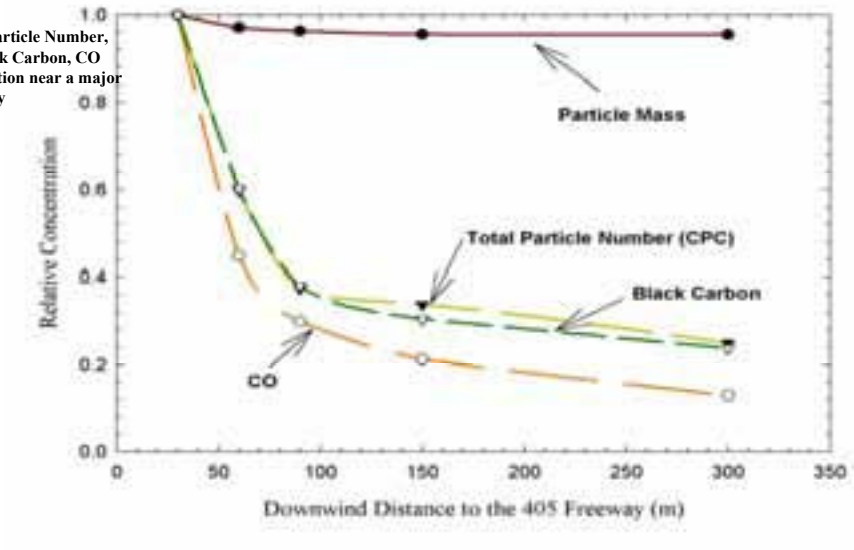
- Fire/burning is potentially an important contributor to noncancer risks
- Large decrease from 1990 to other years is primarily due to wildfires&prescribed burning due in part to methodology inconsistency
- Major source reductions larger for noncancer HAPs than total HAPs
- Area&other trend somewhat limited by methodology uncertainty
- Mobile source tox weighted trends closely follow total HAP trends

This is similar to previous slides, however the emissions have been "weighted" by their respective toxicity factors to depict inhalation noncancer effects. In other words a ton of Chromium VI would be depicted to be more (is much more toxic) than a ton of benzene. Current as well as future projections show reduction of noncancer-weight tons are greater than those expected for straight tons. Some of this reduction may be an artifact of the changes in the methodology between 1990 and future years.

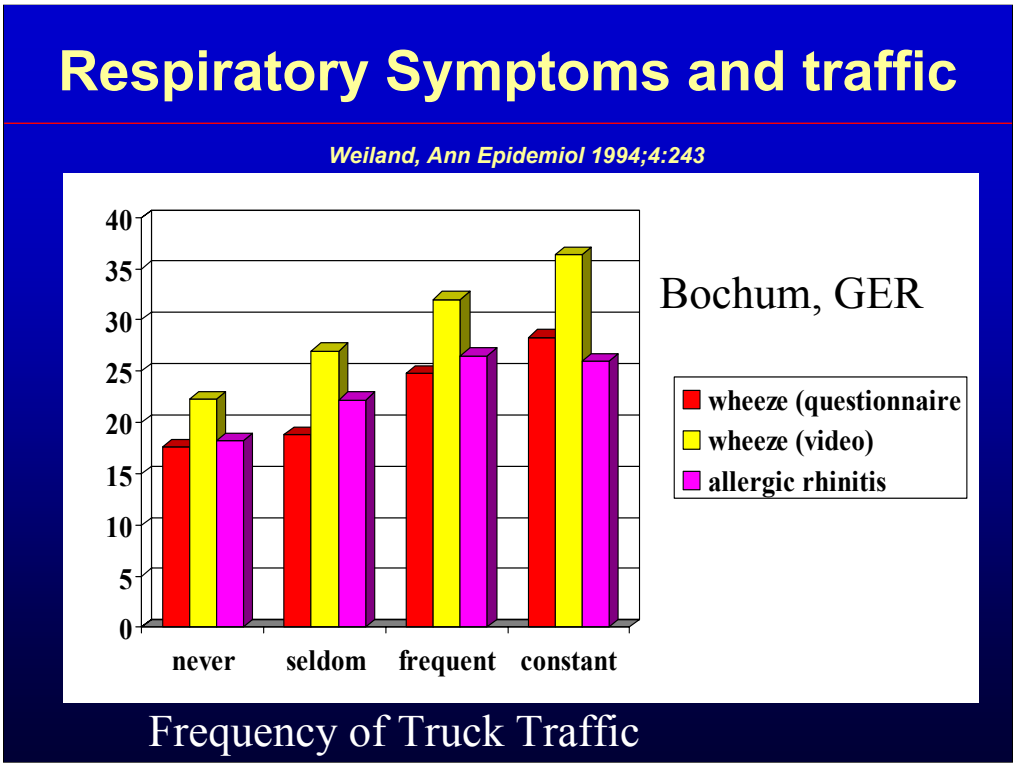
This figure provides a transition to a quick summary of a growing body of evidence that suggests both exposures and health effects of concern for populations who spend significant time on or near heavily traveled roadways. Some of these studies measure the distribution and composition of pollutants emitted and some look for health effects as a function of time spent in or near roadways. Our current NAAQS program tends to avoid placing monitors in microenvironments such as these. At this time, is not clear what current regulations and fleet turnover vs. growth in VMT will do to affect these emerging concerns, although it is reasonable to expect some benefits. This issue bears watching for air quality managers because of its potential significance to future air strategies, urban planning, and environmental justice.

Extreme exposure in near highway environment

Relative Particle Number, Mass, Black Carbon, CO Concentration near a major LA freeway



These are the results of monitoring by the Southern California PM research center sponsored by EPA. It reflects measurements near a heavily traveled freeway. It show that some indicators of traffic particles that are not well correlated with particle mass have very strong gradients near roads.

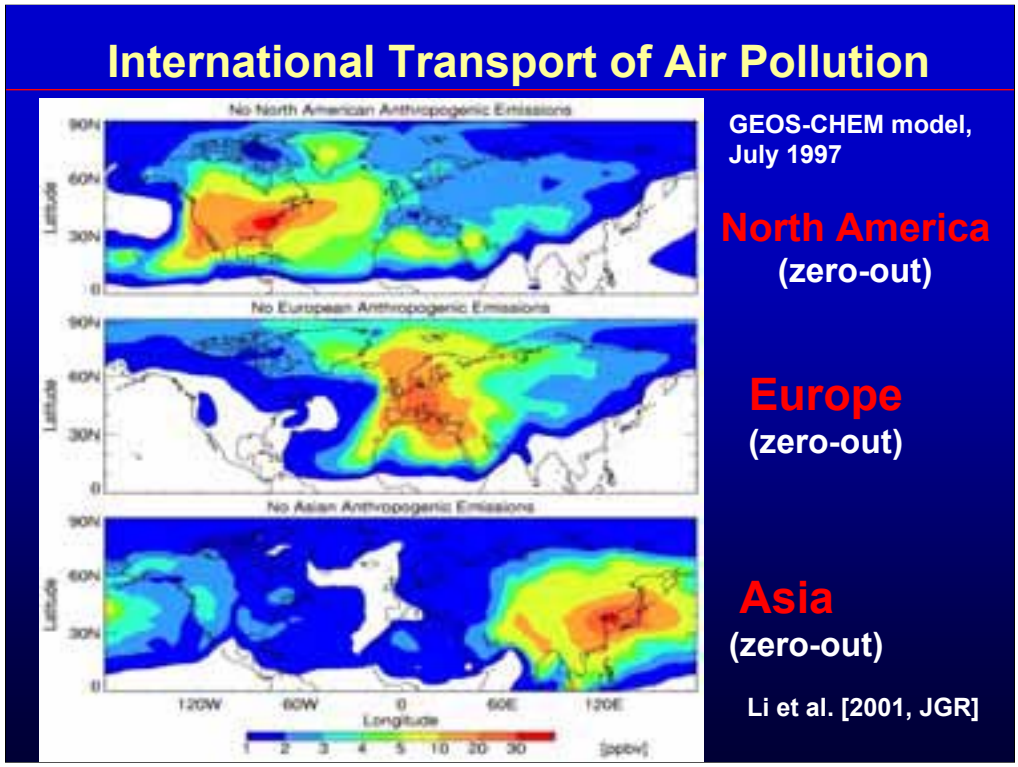


One of the earlier European studies shows a relation between respiratory symptoms in children and frequency of truck traffic. More recent studies have shown a variety of associations; long-term residence near roadways is associated with increased risk of mortality, and short-term exposure to traffic conditions (driving, cycling or mass transit) is associated with heart attacks.

International transport/climate interactions Scale: global/regional

- •INDOEX, other preliminary work suggest significant potential of BC aerosol for affecting hydrologic cycle on a regional basis
- •Significant effects of Asian pollution on regional health, crops
- •Short-life of conventional pollutants suggests rapid response to reductions
- •Increasing interest in international agreements
- •Need improved tools, observations to address this scale

This slide introduces a brief discussion of linkages between conventional air pollutants and regional to global scale transport issues, including climate. The NRC pointed out the issue of international transport of air pollutants as well as the potential need to adapt air quality planning to address the effect of climate change on air quality. In this portion of the briefing we note two additional related potential interactions: the effect of conventional air pollutants on regional climate and the possible need for air quality mangers to integrate conventional and non-conventional strategies that might address both climate and air quality concerns.



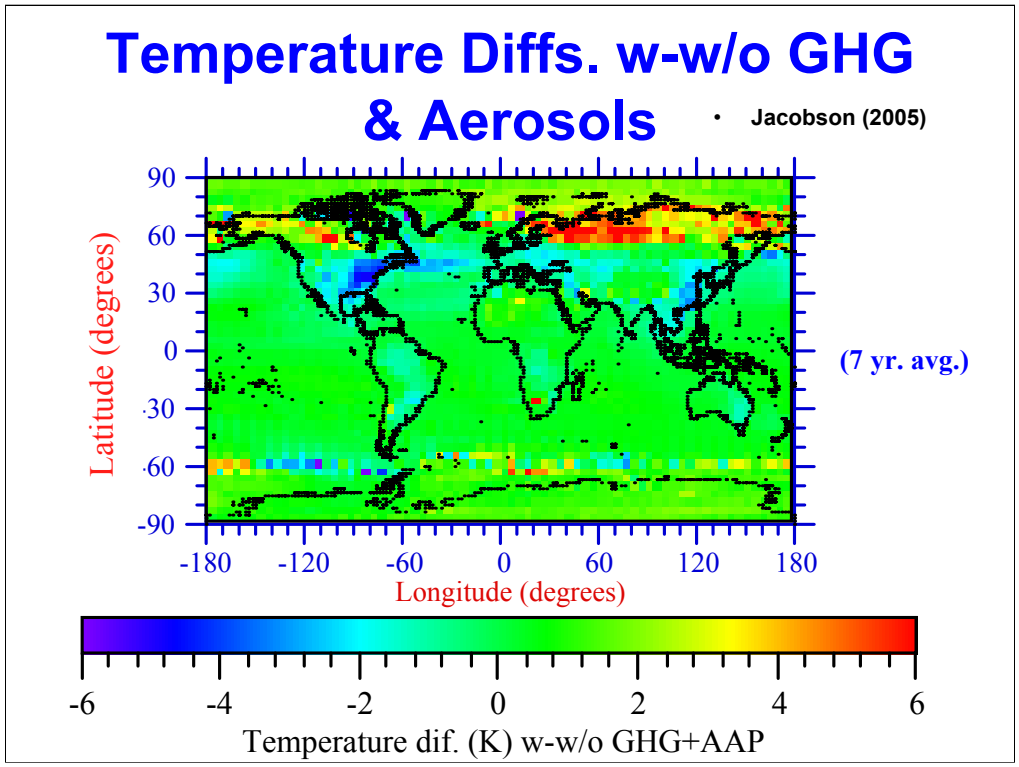
This slide summarizes the results of zeroing out emissions of key ozone precursors from anthropogenic sources in three Continents. It is intended to illustrate the extent of significant regional and intercontinental transport of ozone and its precursors. On this scale, methane gas is one of the most important contributors to ozone transport. Modeling and measurements suggest that background ozone has increased from 10 to 20 ppb in preindustrial times to 40 or more ppb today. The amount of transport may significantly affect our ability to attain air quality goals in the future. Because both methane and ozone are greenhouse gases, the air quality and climate interests clearly overlap on this scale.

Assessing indirect strategies: "cool" cities

- Trees aren't just good to look at – they remove air pollution (ozone and PM)
  - They also emit VOC's
  - And cool the environment reducing evaporative emissions from manmade sources
- Air Policy Issue
  - Credit for enhancing tree cover
  - Penalty for eliminating trees?

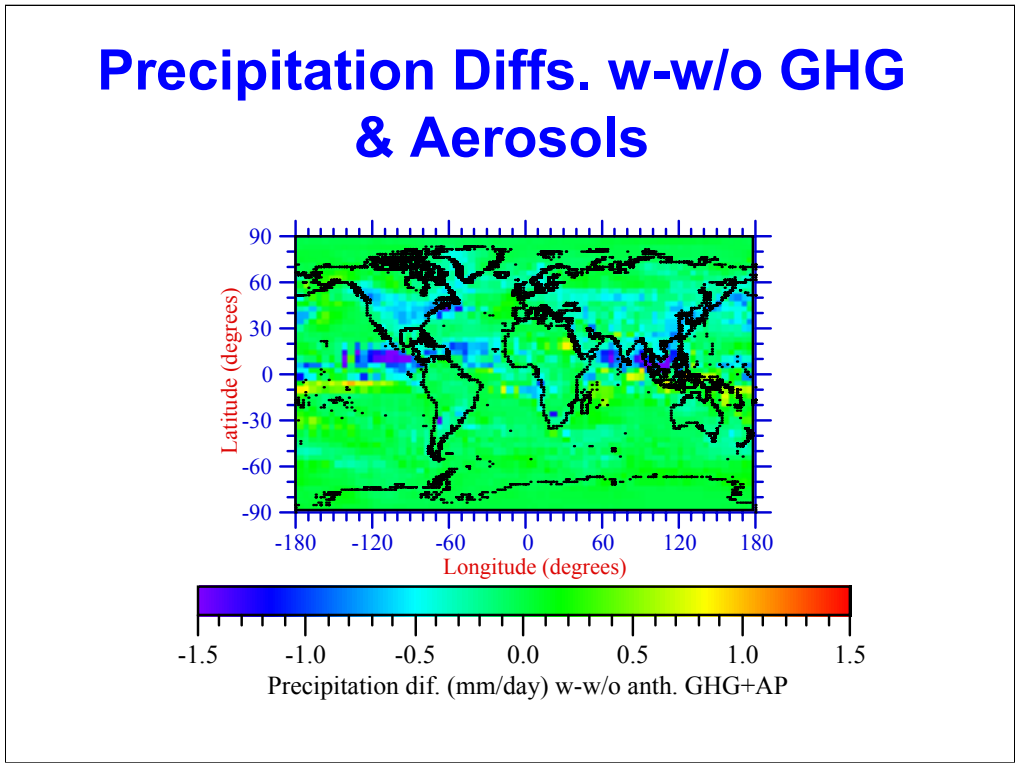
On a local scale, urban foresters and others are considering 'cool cities' as a means to reduce ozone and PM air pollution. This includes direct removal by increased vegetation and indirectly reducing emissions of VOC and NOx by cooling through trees and more reflective urban surfaces. These strategies raise issues for air quality managers regarding the need to consider credits for adopting such strategies, as well as what to do in areas where sprawl eliminates trees and increases urban heating. It is also an area in which the collective local implementation of potential programs related to climate change mitigation overlaps with air quality management.

An example of related societal trends that may link with air quality considerations. A new movement in urban planning is attempting to redesign cities and buildings to promote healthier environment for people and ecosystems. A catch phrase is of this group is 'active living by design.' The recent roadway findings noted above suggest there may be additional health benefits of separating people from traffic. Smart growth advocates argue that greenways can protect water quality, preserve sensitive natural areas, reduce flood hazards, and provide important recreational opportunities. They also note the need to preserve the corridors that link greenspaces together.



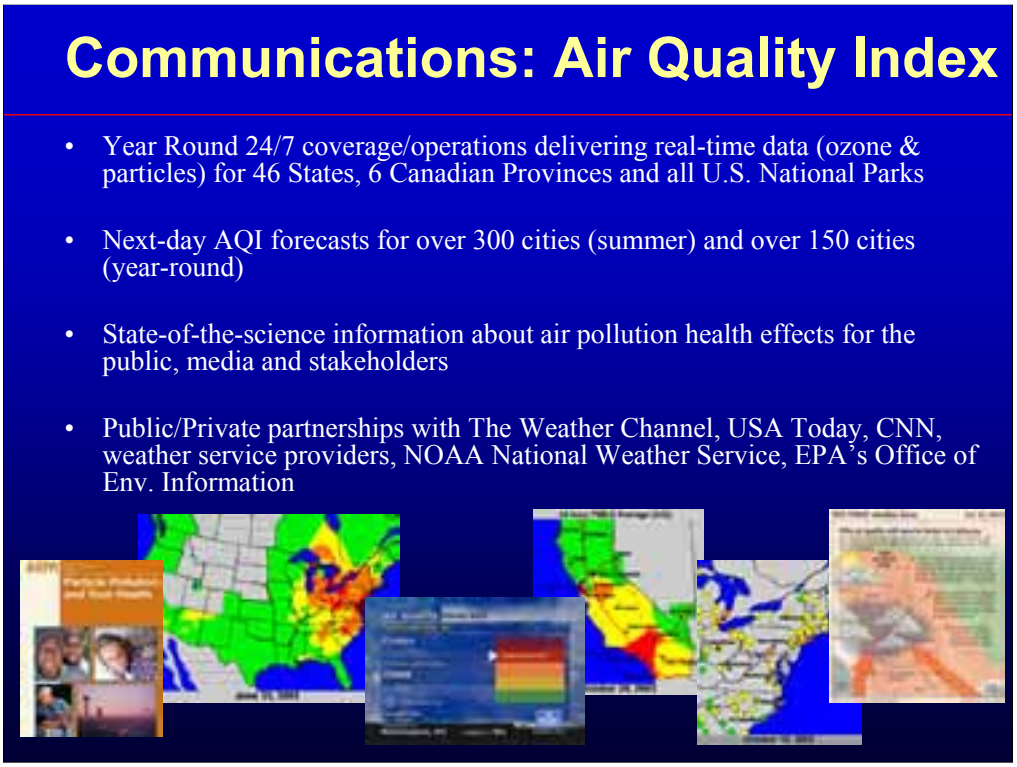
This and the following figure present recent global simulation modeling conducted by Mark Jacobson of Stanford University. Such complex global modeling is obviously uncertain, and the results serve mainly to illustrate the complexity of the issues.

Together, the figures show the result of zeroing out manmade greenhouse gas (GHG) and aerosol particles (in this figure for temperature and in the following figure precipitation). Focusing on North America, the blue cooling suggests that the net effect of reducing the high regional background of fine particles in the East (a key feature in attaining the health based air quality standards) would be to produce warming – i.e. these particles are currently cooling that region. Looking only at temperature, the air quality management strategy might be viewed as aggravating potential warming. The cooling is due to increased cloud cover that reduces sunlight reaching the ground and increases that reflected into space.



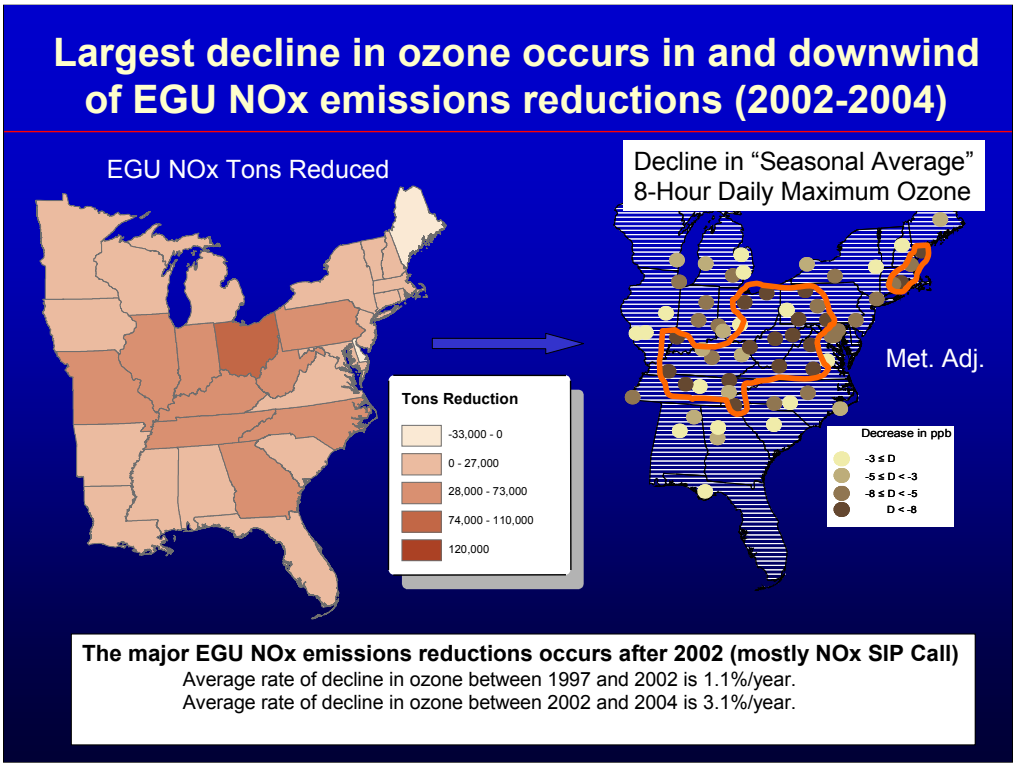
This figure shows the effects of the zero outs on precipitation. The increased cloudiness associated with the aerosol particles comes with a decrease in cloud droplet size which results in reduced precipitation. This illustrates an important potential regional effect of air pollution, namely that air pollution can affect climate on a regional scale, and some of the effects – reduced precipitation – may be problematic. Recent results from researchers at the Desert Research Institute suggest that atmospheric sulfates may be reducing the amount of snow pack accumulation in the Rocky Mountains, potentially aggravating drought conditions. These results illustrate the importance of examining the unexpected feedbacks between air pollution and climate.

The more obvious concern noted in the NRC report is the effect of climate change on air pollutant concentrations. EPA/ORD is conducting extensive modeling to assess some of these effects. The results will be available in 2006-7. Some of the possible effects range from increased ozone under warmer temperatures and increased emissions and stagnation to reduced heating related PM from warmer winters. Obviously, forecasting the timing, extent, and scale of these potential effects will be of importance to air quality managers in the future.

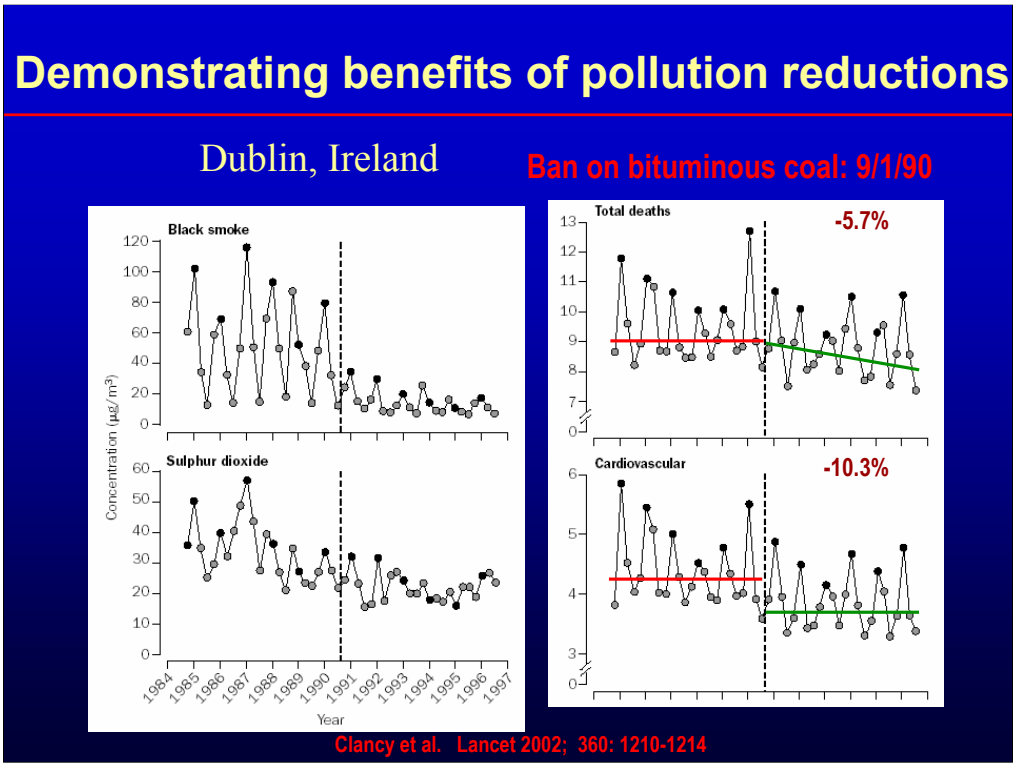


As NOAA and EPA cooperate to develop real time modeling forecasts of air quality comparable to weather forecasts, air quality managers will need to be concerned with communications and potential mitigation strategies that might flow from these advances. It is also important to begin to consider accumulating these daily model runs for comparison to actual results.

The first phase of the CAAAC work on the NRC recommendations dealt extensively with this topic. This slide is a reminder of the need to build accountability as an integral part of future air quality management programs.



This slide, from a recent EPA report, shows a preliminary analyses of the effectiveness of the NOx SIP call in reducing ozone. It is an example of an accountability analysis.



Another example of accountability research, in this case extending results beyond air quality to actually measuring the health benefits of a pollution control intervention, in Dublin, Ireland.

Some mega-trends

- Increased focus on international/global air pollution/climate issues
- Air quality management integrated into larger societal programs, e.g. smart growth, urban planning
- Increasing importance of voluntary/local programs
- Tracking results of initiatives is vital: e.g. compare success of indoor v. outdoor programs at reducing PM exposures

A recent CAAAC subcommittee discussion added a number of insights from members that should be reflected in the notes to this summary slide.

Clean Air Act Advisory Committee
Subcommittee on Air Quality Management
Structure
November 28, 2005

Purpose

One of the key goals of the Subcommittee on Air Quality Management is to assess and develop Phase 2 recommendations for long-term changes to the air quality management system based on recommendations made by the National Research Council in its 2004 report (*Air Quality Management in the United States*).

The AQM Subcommittee will also assist in tracking and serve as a sounding board for EPA's work on implementation of 38 Phase 1 recommendations made by the Clean Air Act Advisory Committee (CAAAC) in January 2005.

Phase 1 Implementation

At the June 16-17 meeting of the AQM Subcommittee in Ann Arbor, we heard a few of the same issues that were discussed at length under the Phase 1 effort. We do not envision the work of the AQM Subcommittee reinventing the Phase 1 efforts or generating another list of short-term recommendations. As you know, our Phase 1 report includes 38 recommendations that focus on improvements to the current system and are intended to begin a steady evolution of change. These recommendations are intended to be implemented in the near-term (1 to 5 years). EPA has accepted all 38 recommendations and has begun discussions and made resource commitments. Implementation of the Phase 1 recommendations is an important step in guiding EPA and others on future actions. EPA's implementation plan for the Phase 1 recommendations is available on the CAAAC website at: http://epa.gov/air/caaac/aqm.html.

Components of Phase 2

Based on discussions at meetings of this Subcommittee in Ann Arbor in June and Arlington, VA in July, the AQM Subcommittee agreed on the following team structure for this Subcommittee.
1) The AQM Planning Process
2) New and Improved AQM Tools
Each of these teams is discussed in more detail on the pages that follow.

Each team will have three leaders. Teams will conduct their work through conference calls and in breakout sessions at Subcommittee meetings. Each team will report regularly on its progress. Final recommendations in each area will be based on significant consensus reached by the Full Subcommittee. Subcommittee members may participate in more than one team and participation on the teams by interested parties who are not members of the Subcommittee is encouraged. EPA will provide some logistical support to the teams as well as technical and policy support.

For the Phase 2 effort, this Subcommittee is committed to taking a more holistic look at air quality management and identifying how we could meet future challenges. We encourage each of you to think more broadly on how air quality management practices could be applied at the State and local levels as well as nationally. We also would like to emphasize the need to expand

our discussions to include Tribal lands and encompass their issues and approaches into our overall AQM planning process.

Structure for AQM Subcommittee Teams:

Team 1) The AQM Planning Process –This team will design a process for managing air quality that simultaneously addresses (or addresses in an integrated fashion) the full range of air quality issues (health, welfare, and ecosystems). It will take a more in depth look at the pollution problems we have to solve in the future and develop larger, more fundamental recommendations to the AQM system to address these problems. This team should work to develop specific responsibilities that each of the stakeholder groups would agree to implement under a new AQM system (i.e., industry agreement to install certain level of control on new plants regardless of location). Below are some potential components that may be important for this team to address:

- Problem definition and determining necessary reductions
- Determine meaningful boundaries (e.g. state, air shed or other approach)
- Transform the SIP process
- Provide for continuous progress and accountability (are goals being achieved)
- Deal with pollution transport (intercontinental, cross-border, regional, interstate)
- Define roles at each level of government (federal, state, tribal, local)
- Incorporate environmental justice and local impacts in air quality plans
- Adapt the AQM system to a changing (and most likely warmer) climate and increase coordination with other activities addressing climate change*
- Assess multi-pollutants, multi-effects
- Coordinate AQM with land use (agriculture, forestry, sprawl, water impacts)
- Increase trust between stakeholder groups, government agencies, and the public
- Improve communication and access to information
- Build partnerships among States, Tribes, industry, EPA and others
- Be more proactive at problem solving
- Expedite procedural requirements
- Build in feedback mechanisms
- Enhance ecosystem protection
- Increase collaboration on energy use

* While the Subcommittee did not have consensus on the wording of this bullet, all members agreed that work could proceed.

Team 2) New and Improved AQM Tools – This team will develop and describe emission management strategies and tools to meet ever more stringent/ambitious air quality goals. It may focus on efficient and effective control strategies such as voluntary programs or economic incentive-based programs and identify ways to foster such approaches. We anticipate this team working closely on economic incentive approaches with CAAAC's Subcommittee on Economic Incentives and Regulatory Innovation. This team will also look to create and expand linkages between the air quality management process and management processes in related areas such as energy, agriculture, forest management, land use, transportation, water quantity and quality. As we look more holistically at our AQM process, this team will be tasked with identifying ways we

can coordinate the AQM process and other activities to encourage efficient land use and energy use, and to work more closely on transportation planning. This team will begin by reviewing and, as appropriate, expanding recommendations submitted back in the late-1990s by the CAAAC's existing Subcommittee on Linking Land Use, Transportation and Air Quality. Below are some of the potential components that may be addressed by this team:

- Expand market/economic incentive approaches
- Achieve reductions, including criteria and toxic pollutants, from existing sources (stationary, area, and mobile)
- Ensure new sources are as clean as possible
- Identify areas where additional federal regulations are appropriate
- Expand the use of pollution prevention (e.g., efficiency, conservation, renewable/alternative energy sources)
- Encourage innovative, voluntary and flexible policy approaches (i.e., sectors)
- Ensure that emissions reductions are achieved from all source categories (including traditional and non-traditional sources)
- Ensure that any new tools or strategies for use in the air quality management system be evaluated for their benefits or disbenefits to greenhouse gas emissions
- Expand control strategies to link AQM with land use
- Spur new technology
- Consider multiple pollutants when developing control programs and requirements
- Improve permitting
- Incorporate accountability/evaluation metrics into program design
- Further integrate transportation plans into AQM pollution mitigation programs
- Expand investments in human and technical resources

Team 2 will be asked to develop specific recommendations or approaches that may also need to be addressed as part of the overarching AQM process (Team 1). These teams will need to coordinate throughout the process to ensure that efforts are not duplicated and that the Subcommittee is moving in an integrated fashion. Bringing recommendations back through the Full Subcommittee will help keep everyone apprised of all the team activities.

Schedule:

Each team will be responsible for developing a schedule for meetings and deliverables. The Subcommittee co-chairs will ask for periodic updates and schedule meetings for the Full Subcommittee to hear reports from each of the two teams. Below is the planned schedule for meetings over the next several months. At each Full CAAAC meeting, we hope to run our AQM Subcommittee meetings longer (6 to 8 hours) than the typical 2 hour subcommittee meetings.

Subcommittee Mtg	October 18-19	San Diego
Full CAAAC Mtg	Nov 16-17	El Paso, TX
Subcommittee Mtg	Jan 24-25, 2006	Dallas, TX
Full CAAAC/Subcommittee Mtg	Apr 2006	DC area

Expected Work Product:

The goal of the Subcommittee should be to finalize its work by the November 2006 CAAAC meeting. The final product should consist of a series of specific recommendations that EPA, States, Tribes, industry, environmentalist, and other stakeholders can implement in support of

our vision and principles, and ultimately the AQM system we present to the CAAAC for consideration. Some of the recommendations may be fairly broad in nature and reflect shifts in policy and approaches to managing the AQM system. Other recommendations will be fairly specific and designed to produce actual reductions in emissions, improvements in accountability, or changes to the planning process.

Under the current Clean Air Act, the nation has made tremendous progress in protecting public health and the environment. It is likely that most of the recommendations that the Subcommittee develops could be implemented within the current Act. However if the Subcommittee is truly going to be creative in its work, there will almost certainly be recommendations developed that will require legislation to implement. While it is not the role of the Subcommittee to advocate for changes to the CAA, the Subcommittee's final report can serve as a resource to the Agency and to Congress.